AMERICAN JOURNAL
OF
PHOTOGRAPHY

THOS. H. McCOLLIN, Managing Editor.
JULIUS F. SACHSE, Editor. XANTHUS SMITH, Associate Editor.

VOL. XII. DECEMBER, 1891. No. 144.

IN MEMORIAM—DR. JOSEPH PETZVAL.

JULIUS F. SACHSE.

ADVICES from Vienna bring us further particulars of the death and funeral obsequies of the late Dr. Joseph Petzval, a man whose name will ever be held in remembrance, so long as an objective is used for photographic portraiture. The first notice the Photographic world received of his demise, was the following announcement in the daily papers, viz.:—

"The undersigned herewith give notice to all scholars and admirers of the great scientist and researcher.

DR. JOSEPH PETZVAL,

Imperial Counsellor and Kt. of Franz Josef,—Pensioned Professor of the University,—Active member of the Imperial Academy of Sciences in Vienna,—Honorary and Corresponding Member of numerous learned societies.

Notice,—that the above gently fell asleep in the Lord, in the 86th year of his life, on September 17th, 1891, at 12 noon, after long suffering and receiving the Sacrament of Extreme Unction.

His soulless body will be taken from the house of mourning, Saturday the 19th inst., at precisely 3 P. M.,—to the Parish Church of St. Charles, where it will be solemnly consecrated, and then taken to the Central Cemetery, where it will be committed to rest in a separate tomb.

Masses for the repose of his soul will be read in the Parish Church, Tuesday 22d inst., at 8 A. M.

JOSEF AND JOSEFA MAYER,
as attendant and nurse.

Vienna, Sept. 17th, 1891.

From the above obituary notice, it will be seen that the great mathematician and scientist passed his last days in retirement, and away from all social intercourse; for a considerable time he had led a very retired life, only accepting the ovations of his admirers with the greatest hesitancy. No relatives wept beside his bier, no friend mourned at his side, even the learned circles were only sparsely represented at his solemn funeral. It is true, that the deacon of the philosophical faculty, as representative of the *Alma Mater*, robed in the insigna of his dignity, followed immediately after the celebrating clergy, preceded by the Verger of the University, bearing the golden scepter, and supported by Dr. Hartl the pro-rector. Still the multitude of chairs reserved for the expected mourners, were almost entirely unoccupied.*[1]

Petzval had outlived all his contemporaries, and such as were his co-laborers during the period of his activity and brilliancy. In his later years he made neither friends nor social acquaintances.

Very little is known about Petzval's life and habits, the few facts attainable have been gathered together by Dr. J. M. Eder, and incorporated in Part IV of his new work.[2]

Petzval was always of a peculiar disposition, and retiring nature and was never married. It is known that during his summer sojourn at the Kahlenberg, in addition to his scientific labors he gave himself a daily task of wood-chopping, a physical task, which brought the sweat upon his brow, but fortunately not without a happy reaction on his physical system. As Petzval was always adverse to any biographical notices being published about himself, most accounts of him are confined to a simple list of his publications.

In 1877, Petzval was elected an honorary member of the Photographic Society in Vienna.

All photographers wherever scattered throughout the world have reason to place him, who gave them the first light strong[3] objective, beside Daguerre—Poitevin, and other pioneers in the photographic field.

[1] Ludwig Schrank in *Photo.* Correspondence.

[2] Ausführliches Handbuch der *Photographie.* 2 Edition, Heft IV.

[3] licht stark.

Even after Petzval had passed through the regions of abstract, human knowledge, he still in his advanced age, continued a votary at the shrine of physics and mathematics.

Professor Fritz Luckhardt at the funeral placed a laurel wreath, tied with violet ribbons upon the bier, in the name of the *Photographic World*. It bore the following inscription:

"*From the Photographic Society in Vienna, to their Honorary Member, the great Scholar and Scientist,*"

JOSEF PETZVAL.

At the late meeting of the Photographic Society of Vienna, October 6th, Professor Luckhardt delivered an eulogy upon the deceased, in which he recounted Petzval's services to photography. He closed with an appeal that a suitable, artistic memorial be erected over his remains, to perpetuate his services. In response a paper was opened at the meeting, the first subscriber pledging himself for 500 florins.

DR. EDER'S BIOGRAPHICAL SKETCH OF PETZVAL.[4]

Josef Petzval, a professor of mathematics in Vienna, during the winter of 1840, encouraged by Ettingshausen, applied himself to the investigation of the photographic objective; the first practical result was the completion of a new formula for a portrait objective.[5]

This formula Petzval, during the same year handed over to Fr. Voigtländer, an optician in Vienna. Early in the following year, after Librarian Martin had made a number of successful exposures with the new objective, the former placed the new objective upon the market; these lenses became known as "Petzval's Objectives," after the original computor, but, it was not long before they were also known in the trade or commercial circles as "Voigtländer's Double Portrait Objective."

How greatly Petzval furthered photography by the computation of his celebrated formulæ, which so greatly exceeded the

[4] A free translation—Ausführliches Handbuch. 2 Ed. Part IV. Chapter II, pp. 39—44.

[5] Petzval Bericht über die Ergebnisse einiger dioptrischer Untersuchungen Sept., 1843.

single lenses heretofore in use, may be judged from the fact that it so shortened the time of exposure,[6] as to accomplish the possibility of obtaining a portrait of the face of the sitter without difficulty.[7]

Josef Petzval was born of German parentage, January 6th. 1807 in Bela, a small village in Zips in northern Hungary, He studied and graduated in the Pesth University, in 1832 he was appointed assistant, and in 1835 professor of the higher mathematics. In the following year he was called to fill the same chair in the University at Vienna, which previously had been occupied by such eminent scholars as J. J. Littrow, and A. v. Ettingshausen, this position he maintained until the year 1884. Among his students who afterwards distinguished themselves as mathematicians, we find such men as V. Schmidt, mechanical engineer; Ignaz Heger, technologist; Dr. Kolbe, mathematician, Josef Derffel, musician and scientist; Oscar Simony, Dr. A. Steinheil, etc.

Prominent among his theoretical labors published by the Imperial Academy of Sciences in Vienna 1851-9, are (1) "Integration of the linear Differential Equations, with Constant and Changeable Co-efficients." 2 Volumes quarto, 416—686 pages respectively.

(2) Essays relating to the "Principle of Maintaining the Period of Oscillation."

In addition he repeatedly read papers before the Academy, respecting his theoretical and practical deduction in the field of optics (camera obscuro, telescope, microscope, etc.). In his small optical mechanical workshop at Kahlenberg, near Vienna, he made numerous, far-reaching experiments and discoveries in photographic optics, ballistics, etc.; unfortunately the interesting results, have so far not been collated.

His activity in the field of photographic optics opened the avenue for other improvements. In the early days of daguerreotype, single achromatic lenses were used, which had to be stopped down to afford a sufficiently defined picture. To ensure the development of photography, it was of the greatest importance,

[6] The Petzval system was over ten times as rapid as the old system then in use.

[7] Erste Beschreibung des Voigtlanderschen Apparates. Dinglers *Polytechnischen Journal.* 1841 Vol. 79, pp. 80—83.

to obtain an aplantic lense which would be very light strong, and would give a well defined, and evenly illuminated picture with a full opening. It was such an objective, which Petzval constructed and gave to the world. Almost immediately upon the introduction of the Daguerre process, with its imperfect French objective, Petzval devoted himself to the improvement or perfection of the photographic objective, and it was by close mathematical calculation alone that he arrived at the formulæ for his celebrated double portrait objective.

In the year 1840, Petzval made the acquaintance of Friedrich Voigtländer, and the latter under his instruction, executed the first photographic portrait objective, according to Petzval's computations, Voigtländer furnishing the glass used for the refracting and diverging indices.

Petzval's discovery of the light strong double objective, encompassed a far greater scope, than was ever dreamed of at the time of the discovery. Petzval's discovery becomes even more wonderful, when it is taken into consideration that this unsurpassed lense construction, which has never been surpassed with reference to illumination and rapidity even unto the present day, was the result of purely arithmetical calculation.[8a]

At the same time Petzval computed another objective, which gave a more extended sharp and correct picture. It was not however, until after a lapse of seventeen years that this was given to the public,[8b] when it was brought into the market as the "Orthoscope."[9a-b].

Voigtländer grasping the importance of the discovery, undertook the execution of these new double objectives with energy and presistance, in addition to his practical knowledge, suitable to the wide range of the discovery, and thus

[8a] It is stated that whenever Petzval needed any assistance in his abstruse calculations, he merely applied to the Director General, the Grand Duke Ludwig, who would detail ten soldiers, from the Austrian Artillery Corps who had some knowledge of arithmetical calculations, to do Petzval's bidding.

[8b] Petzval's Report of Dioptric Investigations, 1875.

[9a] From the Greek Orthos—right, and Skopeo—to See.

[9b] The twin brother of the Petzval portrait lense, having been invented at the same time by the same distinguished scientist. * * * * There are those to be found who still predict a great future for the orthoscope, when some modern optician of eminence chooses to take it up again.—*W. K. Burton, Photographic Optics.*

rapidly extended his name and reputation in all quarters of the civilized world. Petzval's inflexible spirit and impractical methods soon brought about differences, and led to a rupture with Voigtländer, with whom he had at the outstart, entered into business relations, for the manufacture of his portrait objectives.

Voigtländer, however, continued the construction of portrait Objectives according to Petzval's System, and in consequence was forced to remove his establishment from Vienna to Braunschweig. Petzval at once entered into an arrangement with the Vienna optician, Dietzler, to produce his portrait objectives and Orthoscopes; yet, notwithstanding the fact, that this establishment for a number of years controlled these objectives, it was eventually discontinued through financial mismanagement,[10] and Petzval never received the fruits of his labor or any financial reward for his discovery.

It is ever to be regretted that Petzval and Voigtländer became entangled in the hot strife, over their relative portion of the valuable improvement in the portrait objective. Both really deserve an equal share of praise, for their service to photographic optics, where Petzval computed and discovered the portrait objective, Voigtländer, by the correct construction of the lenses, and his subsequent improvements, introduced them into practical use.

Although Petzval published his "Information regarding the result of sundry dioptric Investigations" in 1843, and sundry treaties relating to a series of his investigation, in the Academy of Science in Vienna, he never published the particulars of his computation and calculations, by which he arrived at his formulæ for the Objective. His Mss. relating to this subject, in later years were destroyed by a curious circumstance. Petzval lived at a farm-house in the suburbs of Vienna, which on one occasion was entered by burglars, who in their search for valuables and securities, destroyed and mutilated many of Petzval's calculations, which so disheartened the great scientist

[10] The main cause for Dietzler's failure, consisted in his carelessness in the manufacture of the lenses; numbers of them were so faulty in their construction as to be *useless*.

that he never after re-arranged the papers which were left intact.

As early as 1840, Petzval had commenced a computation for a light strong combination, suitable for landscapes and reproductions; in this the front combination was analagous to the portrait objective; but the back combination showed different curves. This new lense as stated above was not placed on the market until 1857, when Dietzler in Vienna commenced its manufacture at Petzval's request.[11]

Voigtländer at once placed a similar lens of his own upon the market, disputing Petzval's claim of novelty by producing the original Objective made by him in 1841, this re-opened the unfortunate controversy between Petzval and Voigtländer, the latter, however, continued to make the improved objective, which has since given him a universal reputation.[12]

As the new objective permitted a larger opening than the single landscape lense without affecting the definition, and one of equal power contained about three times the illumination of the latter, large lenses for landscape purposes could be dispensed with. In consequence, of which the Orthoscope was declared[13] to be the best known objective for landscapes and reproduction of drawings, etc., although it was not altogether free from distortion.

As our frontispiece, we give a portrait of the distinguished scholar, from a photogravure in our collection, which shows the great mathematician as he appeared in the prime of life, shortly after having discovered his celebrated portrait lense, and while he was in the zenith of his intellectual power. Several of our German exchanges, reproduce a photograph, taken lately by Prof. Luckhardt—this represents the late savant as an old man of decidedly patriarchial appearance—with dishevelled hair and dressed in a coarse woolen shirt—open at the throat—a portrait which hardly does justice to the illustrious scientist

11 Petzval transferred all his rights in the Orthoscope to Dietzler, with the declaration that he alone was authorized to manufacture it.

12 Under the name of and still known as the Euryscope, (from the Greek-eurus-wide-broad-Skopeo—to See).

13 On the report of Foucault, Bayard and Bertsch, to the Parisian Photo. Society *Horn's Photo. Journal*, 1858—Vol. 9, pp. 4—69. Bull. Soc. Francaise).

THE PHOTOGRAPHING OF DISASTERS.

BY ELLERSLIE WALLACE.

BEARING in mind the old saying of its being an ill wind that blows good to no one, we can reconcile ourselves to the somewhat lugubrious heading to our article; for whatever be the losses to those concerned in disasters, the man who photographs the scene almost invariably comes off the gainer, or at least if he does not, the fault is generally his own.

Disasters now-a-days are fully as common and startling, as they were in Shakespeare's time who spoke of "moving accidents by flood and field, of hairbreadth 'scapes." Not only are they quite as common, but in many instances they take on a character, which makes them peculiarly fit for pictorial or photographic treatment. A good photograph of an ocean steamer, arriving in port after a tempestuous voyage with her deck-cabins smashed in, her boats gone, her bridge twisted, and her funnel lying over and encrusted with salt, will prove acceptable to the public at large, and be sure to command a ready sale amongst those interested in the vessel. We have seen many such vessels. In cases of collision on the water, where the bows, or other portions of either vessel are carried away, leaving just enough of the hull to reach port, good photographs may be also successfully taken and be very effective pictures.

A point or two might be borne in mind, when engaged in work of the kind. For instance, we know that a really truthful, and accurate photograph of a given object is best made with a rather long-focus lens, which will give correct perspective. Now in many cases of marine wrecks, and things of similar nature, a little exaggeration will do no harm, but really conduce to the effectiveness of the picture. Our practice, when working upon these subjects, is to put on a wide-angle lens, and go as close as possible to some prominent portion of the wreck, and purposely distort and exaggerate the foreground.

We thus proceed in the opposite way from the usual one. We are strong advocates of long-focus lenses, rather than short

focus, or wide-angle ones for all ordinary photographic purposes. This matter we need not enlarge upon; we have recurred to it very frequently in these pages. But as the photographing of such objects, as marine wrecks, or the debris of a railway collision is quite a different matter, we advise the wide-angle lens, used close on the subject, in order that its main characteristics may be made prominent in the picture.

We may here take occasion to say, that our experience in these things is not confined to the general photographic part. We have been present in at least one serious railway collision, and hotel fire, besides other catastrophes. A few moments after the collision, we observed a young amateur, walking off to a considerable distance from the wreck into the middle of a field, and exposing his plate with no other support for the camera than the shoulder of an obliging friend. It is hardly necessary to say that he failed completely. Had he come close up to the pile of telescoped cars and engine lying on its side, he could have made an effective view, which, indeed, was done by a professional man in the neighborhood on the day following. Much may be done with subjects of this nature, if the angles, at which the principal lines stand be noted and the light chosen accordingly. For instance, a striking feature of this wreck, from which we made a fortunate escape, was the pullman car, we had been seated in, and which was tilted up into the air at an acute angle. This could not possibly have been photographed except from the rear side, and, yet, in the published views, it was neglected altogether. The attempt made upon the confused mass of the baggage car, with the engine, tender telescoped into it, were by no means satisfactory. Nothing but a stereoscopic camera could have done justice to it, and to make matters worse, the negatives were taken right against the light, so that the shadows were merely black patches without detail.

It not unfrequently happens that a railroad wreck is too complete to permit anything like successful photographing to be done. The same will sometimes be true of buildings which have collapsed or been burnt. The hotel fire in which we had the misfortune to be present, was all over and done with in

about forty minutes; absolutely nothing being left, but the brick foundations and a bed of hot coals. Here the camera would not have been useful, but we have often seen the flames leave picturesque ruins behind them. In this connection, we may recall the part that the destruction in the late disaster at Johnstown, Penna., was so complete that there was little, or nothing left to be photographed. The same is often seen in the track of the terrible cyclones, so common in our western states. But on the other hand, a blizzard, such as the famous one in the spring, of the year 1888, will sometimes transform the most ugly and commonplace localities into very picturesque material, well adapted to the camera. The streets of Philadelphia and New York, could at all times be called really interesting, from the artistic point of view; so likewise were the streets after the great hail-storm, which visited Philadelphia early in May, 1870. At that time, we photographed the streets, as well as a collection of the hail-stones, which averaged more than an ounce in weight. The pictures attracted great attention.

Some very fair attempts at photographing burning buildings, even in the night hours have been made. Of course, in these cases everything depends upon getting a good position for the camera. The presence of large crowds of people at such places, as well as at disasters in general, adds greatly to the interest of a photograph, but almost always make instantaneous exposure desirable.

Art in Oklahoma.—After exhausting every means known to the craft without dispelling the funereal expression from the baby's countenance, the photographer turned in despair to the mother:

"Madam, can't you do something to make him look a little more cheerful?"

Fond Mother. "I reckon so. Azherry (to the baby) yer paw whipped a claim-jumper last night an' then run him four miles."

The baby smiled like an angel.

POSING AND COMPOSITION, WITH ESPECIAL REFERENCE TO THE ACCESSORIES. I.

BY XANTHUS SMITH.

WHAT can we say upon this subject that will really aid and benefit the photographer, tramelled as he is by the means through which he accomplishes his work, and by the conventionalities of fashion?

Difficult as are the matters of posing and composition to the painter, a hundred-fold more so are they to the photographer, because while the painter has his figures, and their surroundings under almost entire control, the photographer is hampered and limited at every point.

The painter draws largely upon his fancy to fill up his work. It is immaterial to him, whether his objects be precisely in certain positions, relatively to each other or not. It is within his power to advance or recede, raise or lower, and in fact, mould the material of his picture to his will as he progresses with his work.

The photographer on the other hand, is bound by certain mechanical laws, which he cannot set aside; but, in conformity with which he must accomplish his results, no matter to what extent they may grate upon his judgment, or be at variance with his conceptions of the graceful and harmonious.

It is fortunate, indeed, for the photographer that the atmosphere of high art has been dispelled from this earth, dried up, blown away, or otherwise caused to vanish under the light of science and realism, for to-day, notwithstanding the limited sphere of his action, he is able to hold his head up, call himself artist, and even brother to the painter, whereas half a century back, even with the entire advancement in excellence of the present day, had he presumed to more than the title of an artisan, he might have expected to have been stricken by the shaft of Apollo.

Now, if the plier of the sun and silver art be criticised for nonconformity to the rules of high flown taste—he has only to point to the works of many fashionable painters, and say,

"Look at this work. See how the good old rules are put at defiance, and how people and their surroundings are portrayed at haphazard."

Many say that such ill composed arrangements, discordant and ugly as you may call them, are more natural than the studied effects of the masters of earlier days. True enough perhaps. But who that has a face with too big a mouth, a nose set awry or one eye cocked, perfectly natural, would not if they could, just before having their picture taken, re-arrange their vagaries of feature a little, so as to make them conform more to the rules of symmetry and harmony.

As we said at the outset, the power of the photographer is limited, but in so far as he may do so, let him endeavor to attain agreeable and symmetrical arrangements, both in the composition and the effect in his work. One of the greatest obstacles that he has to contend with in composition is the constant presence of unbroken right lines, both perpendicular and horizontal. On account of their continuity and stiffness they are invariably unpleasant, and if often repeated become very obnoxious. In making groupings in apartments, when good prepared backgrounds are not used, these unbroken lines form an almost unsurmountable obstacle to good work, because let us look where we may, our eyes are sure to encounter door and window facings, chimney and other projections and angles of walls, mantel tops, and surbases, often painted white, or of a color that brings them out equally conspicuously, and which, in consequence assert themselves so positively, that although, we are not aware of it, when looking at a photograph which is beset with them, our attention being concentrated on the important matter of the work, yet they exert so unpleasant an influence that it is with feelings of relief that we turn to a work, which is free from such blemishes.

Various arts are resorted to avoid, or rather remedy such obtrusive lines, as may be seen in the works of good painters, and, also by the art used in the production of the best backgrounds used by photographers. Pieces of drapery are hung up to entirely or partially cover such unbroken direct lines. Shadows are cast upon some portions, others being allowed to

remain in light, vines and various objects of vertu are brought into play, and a variety is thus produced which is gratifying. It will always be observed, though, that in the best backgrounds used, a quiet space, free from all incumbrance is reserved for that portion, which is to fall back of the head or group to be portrayed.

The background and its relation to the group to be posed in front of it or with it, is a matter much discussed and very various are the modes adopted in practice. A great range may be seen in good work from the perfectly plain background to that filled with a multiplicity of objects. I think it will generally be conceded that preference should be on the side of simplicity. Take for instance those photographs, which are made of persons in handsomely furnished apartments, it matters little, whether they are of single figures or groups, we always find them less satisfactory than when the pose or grouping is made in front of some properly prepared screen, or even a blank space, provided the latter be varied in light and dark. The reason for this is, that in the case of posing in showy apartments, the attention is unavoidably drawn from the group, which should receive the principal thought, by the multiplicity of objects surrounding it—and the mind becomes disturbed instead of composed in looking at the picture. What satisfaction would we have in coversing with a person if another in the same apartment were playing a favorite opera on the piano, another telling an interesting anecdote, and still another singing a ballad? The effect of a crowded jumbled up picture upon the eye, is much the same as the buzz of a merry company upon the ear.

Whilst simplicity is of great importance in works of art-making them impressive, we may yet readily err in that direction and run into barrenness and insipidity, a quality which should be avoided in the portrait groupings of the photographer, where we should see enough appropriate accompaniments to our figures to give them proper support, and an appearance of comfortable surroundings.

One of the chief advantages in the painted background of the photographer over actual walls and furniture, is that the

artists who prepare them subordinate them to that, which is a to be placed in front of them.

We constantly see elaborate efforts made to arrange backgrounds and groupings with real furniture, plants and objects of vertu, and they are almost invariably failures—because such objects will assert themselves too strongely in the picture and either entirely overpower the principal feature or features, the sitters, or so distract the attention from them, that they destroy the unity and impressiveness of the finished work. It is true that much is often done by way of remedy in such case, by throwing the background objects out of focus, yet beneficial as this may be in bringing out the posers as principal in the work, where there are decided forms, not agreeable in themselves, and markedly light or dark, they will assert themselves unpleasantly.

Real plants are nearly always objectionable on account of their straggling forms, from their not lighting well, which makes them harshly dark with glaring reflected spots in the photograph. Painted plants and vines are useful in backgrounds, because they may be gracefully composed, and suitably lighted to make them take their place. Their great benefit is in breaking up long parallel lines and objectionable angles. In passing I must say a word against the present use of palmetto palm plants, and leaves in photographs. The plant or young tree is beautiful as it grows in nature, but when seen in portion, sprawling into the side of a portrait pose, in apparently detached, ragged, black patches, we cannot but feel that it had much better have been altogether omitted. Many kinds of furniture are objectionable, especially, so when very dark and much twisted and contorted. High backed Gothic chairs of rosewood or dark mahogany, often used, are hard to manage on account of their stiffness and extreme and equal depth. They assert themselves too positively. It is no unusual thing to see, in work by noted photographers, elegantly dressed ladies posed in chairs with high square backs of plush, or such material as comes out the deepest shade in the photograph harshly, and relieved against high light backgrounds.

COLOR PHOTOGRAPHY BY LIPPMANN'S PROCESS.

BY CHARLES B. THRONIG.*

IN a communication of the Academie des Sciences on the second of February last, M. G. Lippmann opened an entirely new line of experimentation on the problem of the photographic reproduction of the colors of nature. To Lippmann's account of his discovery is appended in Comptes Rendus, a note by Mons. Edw. Becquerel, to the effect that the process of Lippmann, differs radically from the discovery made by himself in 1848, in that while Becquerel was able by photochemical means to produce a colored image of the spectrum, which could not be exposed to light, since the action of the usual fixing agents reduced the deposit to a mere film of metallic silver. Lippmann, on the other hand, had by a physical process obtained an image, which retains its colors after treatment with hyposulphite of soda, and is, therefore, as permanent as an ordinary negative. The peculiarities, of Lippmann's method consist, first, in the use of a plate, which is transparent and free from grains; second, in the exposure of the plate with its film side resting against a reflecting surface of mercury. The interference of the reflected with the incident ray of light, divides the film into a number of layers at the maxima, which will correspond in their distance apart with the wave length of the incident light, and will, therefore, be able to reproduce by reflection the color which produced the layers.

Lippmann says that the plates are positive for reflected and negative for transmitted light (negatif par transparence). By negative he means showing the complementary color. In that one of Lippmann's negatives which I have seen and all those obtained by myself, the plates are opaque to transmitted light, showing only difference of density like an ordinary negative. The reverse side of the plate however, shows the complementary colors, somewhat fainter than the original colors, which appear on the film side of the plate.

*Evanston, Ill.

If the plates were, in reality, negative by transmitted light, it might be possible to obtain by two steps instead of one employed in ordinary photography, a number of copies from a single negative. The remaining method is to copy the reflected image, and, as the reflected colors are bright, this may not prove impossible. In my experiments certain modifications were introduced with a view of determining several points, which are not brought out by the original experiment as reported by Lippmann. It is difficult to obtain a plate which shall be transparent, and, yet, possess any sufficient degree of sensitiveness. The plates I have found most satisfactory hitherto are of collodion on a thin substratum of albumen.

Following is the formula employed:

(1)	Cadmium bromide,	25 g.
	Alcohol,	280 c. c.
	Hydrochloric acid,	5 c. c.
	Of (1)	5 c. c.
	Ether,	40 c. c.
	Pyroxylin,	2 g.

Sensitize by adding, drop by drop, a solution of silver nitrate, 1 g. in alcohol, 10 c. c. and pour without waiting for the emulsion to ripen.

The film obtained is a pale, opalescent blue, almost perfectly transparent, and requires an exposure of twenty minutes, or more in direct sunlight to produce images of the green and red. It should be remarked, however that the image is not latent but appears nearly as strong without the use of a developer, as when development is resorted to. Suitable developers will doubtless reduce the time of exposure.

The plates were exposed against mercury, not, however, to the spectrum, as with Lippmann, but to light transmitted by strips of variously colored glass, one object being to determine whether the ordinary colors of objects, consisting, as they do, of a mixture of rays of several different wave lengths, would be reproduced with the same fidelity, as were the pure rays of the spectrum. The composition of the light transmitted by the strips of colored glass employed, as determined by the spectroscope is shown in the following table:

Red: All the red with distinct traces of orange green.
Orange: The entire spectrum reduced in intensity.
Green: A band from the middle of the blue to the middle of the red.
Blue: Blue, with bands throughout the green and red.
Purple: Green and red.

The results obtained, though by no means conclusive at all points seem to indicate: First, that mixed colors may be reproduced with some fair degree of accuracy, though some curious modifications occur. Thus, a thickening of the film between exposure and final drying will occasionally change all the colors in the direction of the red end of the spectrum. A shortening of the distance between the thin plates, and a consequent displacement toward the violet, on the other hand may be produced by allowing the incident light to strike the reflecting surface of mercury, at an angle other than the normal, thus shortening the distance between the maxima, which marks the layers of reflecting deposit in the sensitive film. Second, that an exposure sufficiently long to give a clear image of the red is quite certain to obliterate the blue by over exposure. Third, that an over-exposure may completely reverse the colors, causing the original colors to appear on the reverse, and the complementary on the film side of the plate.—*American Journal of Science, November*, 1891.

Individuality in Hair.—The human hairs are intended to illustrate a remarkable fact—namely, the hairs from our heads possess a recognizable individuality, just as our features do. It is not very long since Dr. Jeserich was consulted by the police with regard to a murder. The evidence presented to him was a single hair, presumably from the head of the murderer, the police having meanwhile arrested an associate of the murdered man, the color of whose hair corresponded with the single hair brought to the specialist. Dr. Jeserich examined the hair and compared it with one from the head of the suspect, and found sufficient dissimilarity to justify the belief that he was not the man. But when the real man was found the hairs were found to be identical in character. Truly the time cannot be far distant when we shall be able to see the grass grow.

THE ORIGIN OF PORTRAITURE.*

BY M. LAZAR POPOFF.

IT is said repeatedly, as of course, that Egypt was the cradle of the arts. Yet archæologists like Lartet, Garrigue, Cristi and others have shown that the first artistic manifestations go back to epochs far anterior to the ancient Egyptians. According to these authors, these first manifestations were contemporary with the presence of the reindeer in the south of France—when the mammoth had not yet quite disappeared, and when man, ignorant of the metals, made all his instruments of stone, bone, and wood. In fact, the first works of art, and particularly the first efforts at drawing, date from these prehistoric times. In France, the oldest remains of these works of art have been found, in the shape of drawings engraved with a flint point as ornaments on articles of reindeer-horn, in caves by the side of the fossil remains of animals which, like the mammoth, have since disappeared, or, like the reindeer, have abandoned those regions. Other drawings have been found on tablets of stone, horn, or mammoth-ivory.

It is not our intention to insist on the simply linear rudimentary designs of which those ornaments consist. We rather invite attention to more perfect and characteristic works, in which, according to the words of Carl Vogt, the spirit of observation and imitation of Nature, and especially of living Nature, is remarkably manifested. An image of a mammoth, found in the cave of La Magdelaine, in the Dordogne, is engraved on a tablet of mammoth-bone. Very striking are the ungainly attitude of the animal's massive body, its long hair, the form of its elevated skull, with concave forehead, and its enormous recurved tusks. All these traits, characteristic of this extinct type of pachyderm, are reproduced by the designer with a really artistic distinctness. The mammoth was already rare in Europe when this primitive artist lived; and this, perhaps, is the reason why only two of the numerous designs

* Translated for the *Popular Science Monthly*, November, 1891.

found in the caves of France are of this animal.* The second of these drawings, found in La Lozere, represents a mammoth's head sculptured on a staff of command. The images of the chamois, bear, and ox are found more frequently; but figures of the reindeer are most numerous. Some are engraved on plates of bone, and others serve to ornament various objects. Sometimes groups of animals are represented, or, on the other hand, the animals are only partly drawn, and merely the head, or head and chest are visible.

The larger part of these drawings do not excel in execution the figures which our school-boys make on walls; but the figures of the reindeer are generally superior on account of the remarkable care with which the characteristic lines of the animal are traced, and also, in examples that are otherwise very rare, by the addition of a few shadows. We conclude that the artist of the caves was particularly interested in the reindeer, which furnished his contemporaries with their principal food, as well as with clothing-material, arms for hunting, and household implements. We know, in fact, that the cave-dwellers lived on reindeer-meat, dressed themselves in its skin, made thread of its tendons, and cut their arrow-points from its bones. In other words, as the reindeer had not yet been domesticated, it stood to those primitive men as a valuable game, and the hunting of it occupied the larger part of their existence. We thus explain why that animal haunted the imagination of the artist of those times. The drawings of the chamois, the bear, and the ox were also often surprisingly exact and really valuable.

Besides these designs of mammals, there have been found in the caves of France a number of drawings of fishes, tolerably correct, but very uniform. According to Broca, they can all be referred to the salmon.

All these relics of the primitive arts of design prove abundantly that the men of that prehistoric age observed carefully the forms and attitudes of animals and were capable of representing them in exact and elegant style, attesting, according to Broca, a real artistic sense.

*Similar linear ornaments have been found in the caves in Belgium, and are referred by Dupont to the age of the mammoth.

Nothing like this has been observed in the reproduction of the human figure, and drawings of that kind are extremely rare. There are two such deserving mention, one of which represents a naked man, armed with a club and surrounded by animals; the second, a fishing scene, a man lancing a harpoon upon a marine animal—a fish according to Broca, a whale according to other authors. The whole of the design is puerile and out of shape, and the proportions are outrageously violated. This is not an exception, for the examination of all the drawings of this kind shows that skilful as were the men of those times in their drawings of animals, particularly of those which were important to them, they were bad delineators of the human figure. "I do not know," says Broca, what prevented them from reaching perfection on this point, but the fact is indisputable and is certainly characteristic." Another no less characteristic point is the entire absence of designs representing plants. No design of a tree has been found, or of a bush or a flower, unless we regard as a flower the "three little rosettes" engraved on a handle of reindeer-horn, which some authors actually regard as a composite flower. This exclusive taste of the artists of the caves is evidently not accidental, for chance explains nothing; and we cannot assume, with Carl Vogt, that primitive drawing originated in a general tendency of man toward imitation of living Nature. We believe that the object of these artistic productions was of a different character, and that they were intended, not for ornamentation of objects or for imitation pure and simple of Nature, but for the production of an instrument to be used in the struggle against Nature. We shall endeavor to substantiate this proposition in what follows, and shall have occasion to say something on the origin of portraiture in general.

We remark, first, that there is nothing to prove that the man of that time was intellectually superior to existing savages; and, if we observe these, we shall find that their drawings have usually a totally different significance from that which art has among civilized people; and that they have nothing in common with ornamentation and æsthetics in general. Indeed, numerous facts go to show that human thought, in the

lower degrees of its development, distinguishes but poorly between subjective representations and objective reality, and that both give rise to the same ideas. For example, a savage seeing one of his family in a dream, cannot imagine that the image is independent of the organic substance of the person in question; and he will see the same relation between the two as between a body and its image reflected by a surface of water. Thus the Basutos believe that if the shadow of a man is projected upon the water, the crocodile will be able to seize the man himself. A like identification may be pushed to the point that tribes are known which use the same word for the soul, the image, and the shadow.

It is necessary to take this fact into consideration in order to appreciate the real sense of the primitive design, and to re-establish the conditions under which it originated. If we suppose a material relation between the image and the object as well as between the shadow and the object, it becomes evident that the savage would comport himself similarly toward the image, the shadow, and the object. From his point of view the image and the object are in close relation, and an action upon one would operate in the same way upon the other. By this way of looking at things, Sir John Lubbock says, the savage is convinced that an injury done to the image is inflicted upon the original: or, to use the words of Mr. Taylor, he thinks that by acting upon the copy he will reach the original. The evidences are many that demonstrate the importance attributed by the savages to this mode of action on the original. Waitz relates, after Denghame, that in a tribe of western Africa it was dangerous to make a portrait of the natives, because they were afraid that by some kind of sorcery a part of their soul would pass into their image. Lubbock also speaks of the same fear as existing among savages; and the more like the portrait, the greater the danger to the original; for the more life there is in the copy, the less must be left in the person. One day, when some Indians were annoying Dr. Kane by their presence, he rid himself of them very quickly by telling them that he was going to make their portraits. Catlin tells a story, at once sober and comical, that when he was drawing the pro-

file of a chief named Matochiga, the Indians around him seemed greatly moved, and asked him why he did not draw the half of the chief's face. "Matochiga was never ashamed to look a white man square in the face." Matochiga had not till then seemed offended at the matter, but one of the Indians said to him sportively: "The Yankee knows that you are only half a man, and he has only drawn half of your face, because the other half is not worth anything." A bloody fight followed this explanation, and Matochiga was killed by a bullet which struck him in the side of the face that had not been drawn. A still more characteristic incident is communicated by M. Brouck concerning a Laplander who had come to visit him from motives of curiosity. He having drunk a glass of wine and seeming very much at ease, M. Brouck took his pencil and began drawing his portrait. All at once our subject's humor changed; he drew on his cap and started to run away. Explanations being had, the Laplander made the rash artist understand that, if he had let him copy his figure, the artist would have gained a dangerous influence over him.

Charlevoix said, in the last century, that the Illinois and Indians of some other tribes made little figures representing persons whose lives they wanted to shorten, and pierced them in the region of the heart. A custom still exists in Borneo that consists in making a figure in wax of the enemy whom one wishes to bewitch, and setting it before the fire to melt; it is assumed, according to Taylor, that the person aimed at is disorganized as fast as his image disappears. The Peruvian sorcerers still proceed in the same way, except that their figures are made of rags. In the Indies, according to Dubois, they knead earth collected from a very salt place with hair or pieces of skin, and make a figure, on the chest of which they write the name of an enemy, and then stab it with needles, or mutilate in some way, in the belief that the same harm will be suffered by the person represented.

Traces of this primitive superstition are also found among civilized people, for Grimn reports that in the eleventh century Jews were accused in Europe of having killed Bishop Ebergard by a sorcery of the kind. They were said to have made a

figure of wax representing the bishop, hired a priest to baptize it, and put it into the fire. As soon as the wax was melted, the bishop was attacked by a mortal disease. The famous adventurer, Jacob, chief of the Pastorals, in the thirteen century, seriously believed, as he says in his Demonology, that the devil taught men the art of making images of wax and clay, the destruction of which brought on the sickness and death of the persons they represented.* It was a custom in the time of Catharine de' Medici to make such figures of wax, and melt them slowly before the fire or stab them with needles, in order to bring suffering to enemies. This operation was called putting a spell upon them. We may also mention the opinion of the earlier Christian writers, who believed, according to Draper, that portraiture and sculpture were interdicted in the Scriptures, and were consequently evil arts. It may be questioned if this opinion did not have its roots in the idea of primitive people that the art of drawing was an instrument of sorcery, by means of which one acquired the power to act upon a person. Mussulmans still have a horror of images, and the Koran forbids having one's portrait made and possessing any image at all.

We would not exhaust this evidence if we did not cite all the facts that go to prove that, in the mind of primitive man, it was sufficient to possess anything—a piece of the garment, hair, a bit of a nail—that had belonged to a person to have power to act upon him and do him harm. The belief in the efficacy of this means is still so strong among some backward people, that persons who have any reasons to distrust others hide their clothes so that they shall not be robbed of any part of them. Others, when they cut their hair or nails, put the cut parts on the roofs of their houses or bury them in the ground. So peasants in some countries bury the teeth which they pull from themselves.

We should add, to complete the picture, that writing to the savage enjoys the same magic power as drawing. This is easily understood when we recollect that writing by figures preceded writing by letters or any conventional signs, and is

*Still believed and practiced in some portions of Germany—J. F. S.

still met among some savage tribes. In these writings by figures, the fact that the man or animal represented is under the influence of an evil lot is indicated by an arrow directed from the mouth toward the heart. A sign of this kind is considered equivalent to a real possession of the animal or person represented.

We could hardly give more convincing proofs of the special significance attributed by the savage to drawing, regarded by him as an instrument of power over another; and while the examples which we have just brought together relates chiefly to man, we may assume logically that the same process—that is, a figured representation of animals—plays a like part in the struggle of the savage against his natural enemies. Other facts exist confirmatory of this hypothesis.

According to Mr. Tanner, the North American Indians, to assure success in their hunting expeditions, made rude drawings of the animal they were pursuing, and stabbed them in the region of the heart, under the conviction that they would thereby obtain power over the desired game. Taylor relates, according to an old observer among the Australians, that the natives, in one of their festival dances, constructed a figure of the kangaroo with plants, in order that they may become masters of the real kangaroos of the forest. An Algonkin Indian, going out to kill an animal, hangs up a figure of it in his lodge; then after giving it due warning, shoots an arrow at it. If the arrow hits, the animal will be killed. If a hunter, having touched a sorcerer's rod with his arrow, succeeded in hitting the track of the animal with the arrow, it would be stopped and held till the hunter could come up to it. The same object could be attained by drawing the figure of the animal on a piece of wood and addressing suitable prayers to the image.

Such was the function of drawing at its origin. An Indian song admirably explains this function, in the words "My drawing has made a god of me!" Faith could hardly be more vigorously expressed in the power of the art of drawing as an instrument by the aid of which primitive man obtained a supernatural power over his enemy or his game. Regarding

the works of the cave men in the light of these facts, we perceive that the purpose that inspired them had few points in common with the sense of the beautiful or the tendency to imitation; and it is clear that if there existed in the mind of the primitive man a material relation between a being and its shadow or its image, that man thought that the same relation was preserved between the being and its image when transferred to any object whatever. The purpose to be reached was to possess the shadow of the coveted object, and the only means of accomplishing it was to fix upon something or another the silhouette of that shadow.

This, in our opinion, was the origin of drawing, and, consequently, of portraiture. It is worthy of remark that all works of this kind derived from the embryonic period of the arts of design betrayed the same lack of proportion and absence of symmetry characteristic of the silhouettes of shadows. The uniform impression given by the drawings, is that they relate, not to the objects themselves, but to their shadows. It is further interesting to note that some contemporary savages, some Australians, for example, are still incapable of grasping the meaning of exact images, while they readily comprehend a crude, disproportioned drawing. Thus, to give them an idea of a man, you have to draw him with a very large head; a feature with which precisely corresponds a drawing representing a fisherman that has been found in a cave in France. He has a greatly reduced body, but his hand, armed with an enormous harpoon, is the hand of a giant.

In his struggle with surrounding Nature, a struggle of which he can not form an exact conception, primitive man had especial need to possess every means that could give him confidence in victory. In starting for the hunt he took with him, as the North American Indian does now, and as some players in our most civilized circles do under another form, the fetich that would insure success—that of an image of the animal to be killed. By engraving on the handle of his knife the image of a reindeer or some other animal, he did not think of ornamenting his weapon, but of exerting some magic power over his prey. And his belief in this mysterious power, by giving

him boldness, energy, and sureness of movement, would often procure him success. Confidence does thus in all things. Just like the modern savage, the cave man would believe that the greater resemblance between the image and the animal, the greater also would be the chance of acting upon the animal. Hence the care that was applied to the reproduction of the animals especially coveted and with which the contest would be hardest; and hence those perfect designs of the reindeer, that magnificent game of our ancestors.*

Very different are the characteristics of the drawings of human forms; and, to account for these differences, we should consider the fact that all the archæological data relative to the epoch of the reindeer testify that the disposition of the man of that age was pacific. Broca calls these men "peaceful hunters," and attributes a gentle character to them. He remarks that an examination of their arsenal very rarely brings out warlike arms, and that we can thus satisfy ourselves of their peaceful character. The Belgian archæologist, M. Dupont, observes that the cave-dwellers of his country had no idea of war. And, if we have a right to compare the existing savage with primitive man, we find that the Eskimo, who is nearest like him, is quiet and peaceful. The Eskimo whom Ross met on the shores of Baffin's Bay could not be made to understand what war is, and possessed no warlike weapons. While, then, we may believe that the cave men rarely raised their hands against one another, it nevertheless remains determined that they waged a bitter and relentless war against animals. Hence they rarely had occasion to exercise themselves in drawing the human form; and hence the imperfect character of their human images as compared with those of animals. As to the forms of plants, it may be remarked that

*In this I differ from the students who find in some of these drawings evidence that the reindeer was a domesticated animal at that time. A representation of two reindeer has been found at Lozere, one of which wears what is regarded as a kind of halter. But the absence of fossil remains of dogs, without which domestication of the reindeer is impossible, pleads, as Carl Vogt remarks, against the existence of the domesticated reindeer. In my opinion, this supposed halter represents rather the emblematic line of which I have spoken, proceeding from the mouth to the heart, indicating the enchantment thrown at the animal by the hunter.

the boreal flora of that epoch, not being at all threatening, could furnish little food for superstition; and no drawings of plants are found in the caves.

In short, the condition of the art of drawing with primitive man seems to be in complete harmony with the meaning which we have attributed to drawing itself, of its being inspired by the belief in the existence of a material relation between a being and its image and in the possibility of acting on the first through the second. Consequently, the principle of portraiture can not be found in a natural tendency of primitive man to the artificial imitation of living Nature, but seems rather to be derived from the desire of subjecting that Nature to its needs, and of subjugating it. In the course of its progressing improvements, the art of drawing has gradually lost its primitive significance and original meaning, till it has become what it is now. It does not differ much, however, from what it was originally, for, while the primitive man expected to reach the living being in its image, it is still life which the civilized man seeks to-day in works of art.—*Revue Scientifique.*

PHOTOGRAPHY IN THE COLORS OF NATURE.

THE search for the philosopher's stone or for the universal solvent was not pursued more earnestly or with more eager hope for its success by the mediæval alchemists than has been in our own time the effort to find some photographic process by which the infinitely varied and beautiful colors of nature may be fixed and reproduced.

That this intense desire is not confined to photographers and other scientists who understand the difficulties in the way is shown by the eagerness with which the public have always received each new announcement of the discovery of "photography in natural colors." For there have been many false alarms—many, of course, by wilful impostors, but many more by earnest experimenters who stumbled upon chance phenomena which seemed to point to success, but which, as in some recent instances, were but repetitions of long abandoned experiments.

The fact is, however, that the long-sought problem of photography in the colors of nature has been practically solved by a Philadelphia scientist, Frederick E. Ives, whose name is already associated with more than one process and invention which have been of the greatest value in the direction of photography and photo-mechanical printing. Nor is this announcement of the fact a new one. Months ago Mr. Ives communicated his process and showed its results at the Franklin Institute, and he has since repeated his demonstrations there and before the Photographic Society of Philadelphia. That the discovery has not been taken up by the civilized world with the enthusiasm which its importance warrants may be accounted for by the fact that men's eyes have been turned in another direction from that in which Mr. Ives has worked. It seems to have been thought that the solution to the problem could only be reached through chemistry, and yet, in the present stage of chemistry, it may be safely said, the problem is as far from solution as ever it was. Mr. Ives, in *his* solution of the difficulty, has reached his success entirely by photographic means and through an exhaustive study of the laws of light rather than of the subtle chemical peculiarities of the silver salts.

Taking for a basis of his experiments a suggestion thrown out many years ago by a tutor in the household of Queen Victoria, Mr. Ives has, after years of the most laborious investigations, perfected a process which, stated very briefly, is as follows: Three negatives are made on the ordinary commercial orthochromatic dry plates, from the same point of view, one by means of the red light rays, one by the blue and one by the green. From these negatives, positives are made, which are projected upon a screen, the three images being exactly superimposed. The light passing through each of these positives is colored by suitable tinted glasses, corresponding to the light rays employed in securing the negatives. These colors are automatically separated and combined, by the action of the transparent positives, so that the resulting image on the screen appears in the colors of the original. If it be objected that this picture is but a transitory and unfixed lantern view,

Mr. Ives answers it by producing, by an ingenious modifications of his process, permanent transparent positives showing the same wonderful color effects.

When the most delicate colors in the sky and foliage of a landscape, whether the striking constrasts of the Yellowstone of the soft beauties of forest and meadow, the brilliant and varied colors shown by the polariscope, or the intricate combinations of color in a painting can be reproduced with such marvelous accuracy as Mr. Ives has done, entirely by an automatic and photographic process, it may be said that photography in the color of nature has been accomplished. EDWARD STERLING. —*Public Ledger.*

AMATEUR EXPERIENCES XIII—A CASE PHOTOGRAPHIC.

MR. EDITOR:—

Pardon my present intrusion, but an amusing case photographic recently came to my notice, and as it is a little out of the usual course of photographic experience, I send you this account, to serve as a warning to all amateurs similarly situated. It came about in this way; among the summer sojourners, who during the late season, were so numerously represented in the vales and retreats between Leopardville and Turkeytown, there was a gentleman with his wife, from the city of Brotherly love, who occupied one of the romantic cottages which have lately been built along the railroad. This couple in appearance and disposition seemed to go by contraries. He was short and stout and crabbed, the lady tall, thin and amiable; they were a childless couple, and while the lady passed her spare moments in caressing her pet black and tan terrier, his weakness was amateur photography; he was a photographer,—or at least thought he was. As an officer of the Keystone Camera club, he often vented his photographic knowledge,—in theories he was surpassed by none,—in practice he could expose more plates than any other member of the club,—and then send them to a professional for development,

and afterwards wonder why these professional men were always so careless, as to spoil the majority of his plates. In fact our amateur had never in his life tried to develop a plate, nor even venture on a blue print; all such mechanical manipulations were beneath his notice, except as subjects for theorizing at the club meetings.

Another peculiarity of this amateur was the delight which he took in snubbing the members of our local society, the Leopardville Camera Club, as they were not equal to him in financial standing. His only standard of a brother amateur's worth and ability seemed to be the almighty dollar and the cost of his outfit; education and probity were all secondary matters in the sight of this gilt-edged citizen. It is easy to see that there was but little or no intercourse between the purse-proud amateur and the humble members of the Leopardville club.

His wife who did not share her husband's infatuation in amateur photography in an unfortunate moment, asked him to make a photograph of her pet terrier "Fido." Nothing pleased him better than to have a chance to convince his wife that he could "take photographs," so the same day he came out with a dozen extra rapidly 5x7 plates, and in the afternoon the operation was started; an 8x10 lens had been borrowed for the occasion, so as to get a large image upon the plate—everything seemed favorable, the dog set up by word of command, and half a dozen exposures were quickly made. Next day the plates were duly taken into town to the professional to develop and print, with instructions to send home a silver print from each plate. In due time they arrived. One showed Fido with three noses, and six ears, another merely a blur where the head ought to be and so on; one print was fair, but little movement was preceptible and the husband thought that this one print would certainly prove to his wife for all time to come, that he was a photographer, and that from now on she would cease to ridicule him about his box on three sticks. Handing the picture to his wife with a confident air, he waited for her appreciation of his efforts. With a twinkle in her eye she merely glanced at the prints and said "Why, Benjamin this is not Fido, this is an all black dog. Fido has beautiful

tan spots on his legs and over his eyes." All his explanation about color values and silver salts, latent-images and reducing chemicals, Pyro and Hypo were all Greek to her, nor would she be convinced that his photographic knowledge amounted to anything, so long as he could not photograph Fido as he was.

This episode brought about more or less friction between the pair, but Benjamin nothing daunted during the week tried several dozens of plates of different kinds and makes with like result; when the dog was there he was always black. The more he tried and failed, the more the wife smiled at his efforts. To make matters worse Benjamin in his dilemma applied for advice to the demonstrator of the Keystone Club. The latter told him there was nothing easier, all he had to do was to powder the tan spots with the white face-powder which his wife used, when they would show all right in the picture. This seemed so easy that it was tried at once, but the powder made the dog sneeze and thus defeated the purpose and worse than all, some of the powder getting on Fido's tongue sickened the dog. This caused more trouble with the wife, as Fido was her pet, and ended in a serious estrangement, the wife concluding to spend a few weeks at the seashore, leaving Fido, Benjamin and his camera at home.

Benjamin now detested the dog more than ever, but at the same time would give anything for a picture of the animal, showings the spots, which would conciliate his wife and at the same time flatter his vanity. Meeting me in the road on a warm summer evening, Benjamin told me his tale of woes, and patronizingly asked my advice in a manner plainly showing that he considered it a great condescension on his part to do so. Well knowing Benjamin's weakness, I told him that the only way that he could get a picture of the dog, showing correct color values, was considering the fact that the dog was sick to kill him before he would die, have him stuffed and mounted in a natural position, then expose a plate prepared with an Erythrosine Solution through a color filterer. If this were done he could rest assured that Fido would neither move, nor sneeze, and that the marks would appear in their true

values, further that from such a negative a pastel enlargement could be made wherein the colors would be equal to Nature.

Little did I think that the proud and wealthy amateur would take my joke seriously, but he did; and now he has a photograph of the dog showing the tan spots in their true color value.

As to what happened in the house upon the wife's return, I am unable to state, as I am not on visiting terms with the family under present conditions, but I have good reason to believe from what the neighbors say, that no cats remained around that house while the various pieces of photographic apparatus, single and collectively, were flying out of the second story window with a thoroughly angry woman on the inside. The couple almost immediately afterwards left the vicinity of Leopardville for their city home.

Incidently I have understood that I am blamed for the whole trouble, further that the wife has another dog, but Benjamin takes no more photographs.

J. Focus Snappschotte.

There came to a well-known artist a printed proof of one of his paintings as it is to appear in one of the magazines. The painting was a large one, several feet in length, but the woodcut copy was not twice as large as a silver dollar; yet the artist said that not a detail or a tone of the original was lacking in the copy. The value of the modern methods of reproduction, which are so nearly perfect, is seen in all the better-class periodicals.

Submarine Photographs.—A French naturalist, M. Marey, has completed some sets of remarkable photographs illustrating the movements of animals under water. The photographs were taken at the rate of fifty in a second, with exposures of between one and two thousandth and one three thousandth part of a second. One set gives all the phases of the undulations of the medusa; another exhibits a squid leaping out of water. Other curious modes of progression are shown.

VICTORIA REGINA LINDL. *Nat. Ord. Nymphaaceæ.*
(THE GREAT VICTORIA WATER LILY.)

NEGATIVE BY PROF. WM. H. SEAMAN, M.D.,
WASHINGTON, D.C.

OUR EXTRA ILLUSTRATION.

THE great Victoria water lily from a negative, by Prof. Wm. H. Seaman, of Washington, D. C. This picture with the lad sitting upon one of the leaves, gives a fair conception of this queen of all aquatic vegetation, which has been successfully acclimated at the Botanical Gardens in Washington. This gigantic plant, the largest known water lily, is found in the rivers and lakes of Guiana, in South America, it is a perennial and grows in 4 to 6 feet of water; the leaves are flat and measure from 5 to 6 feet across, a broad rim about five inches high around the outer edge aids in giving them the power of bouyancy; each leaf weighs from 150 to 200 lbs., and floats by means of air cells, contained in the thick projecting innumerable nerves, and long projecting spines; the color is a light green above, and a vivid crimson below. The plant bears luxuriant floating flowers over a foot in diameter, having numerous petals, ranging in color, from a pure white to rose and pink. The seed pods form an article of food, and are eaten, roasted like maize, and are known as water maize (mais del Agua).

Strange to say, this plant has been known but little over a century. In 1828, M. D'Orbigney, sent some dried specimens to the Museum of Natural History in Paris, which he had obtained in the Carrientes,—a tributary to the Rio d. Plata. The first mention made in print, however, was not until 1832. (Guillmin Ann. des Sciences Naturelles V. XIII, pp. 51). In 1836, Dr. Poeppig mentioned having seen specimens in the Amazon river, of fabulous size, vieing with the Rafflesia of India. It however remained for Sir Robert Schomburgk, agent of the Geographical Society of London, who was travelling through British Guiana, to describe and name the plant. He was travelling with the object of examining the natural products of that part of the British Dominions, and on January 1, 1837, while poleing up the River Berbice, suddenly came upon a flowering specimen. The native Guarani's—call it "Yrupe," literally water-platter.

In 1846, Bridges brought to England 22 seeds, encased in wet clay; of these two germinated, and thus the plant was introduced into England. About 30 years ago, the plant came into notice in the United States; if we are not mistaken, it was first successfully grown in the green house attached to the mansion, at Broad and Walnut sts., Philadelphia.

J. F. S.

Editorial.

The Photographic Periodical.—On a previous occasion we argued the necessity upon all professional photographers, who want to succeed in the struggle for success, of subscribing to one or more of the photographic periodicals of the day, as well as keeping posted on current photographic literature. No matter how well you may be informed in your art and profession, or how long you may have been in the business, unless you use brains in all departments of your gallery, you will not meet with that success, which your technical and artistic knowledge would otherwise seem to warrant. Now the only way to obtain this necessary amount of Dura-Mater, is to subscribe to a photographic periodical like the *American Journal of Photography*, read the contents, advertisements and all, carefully, and then think over what you have read. You will always find something, it may only be a hint or formula, but it may prove to be worth more than you pay for several years' subscription.

* *

There is another matter well to remember, which is but too often lost sight of, viz.;—that by reading up the advertisements you may post yourself, as to the latest apparatus and accessories put on the home market, you can learn more about what is new in the trade, in one-half hour by looking over the advertising pages in any of the prominent photographic journals, than you can by spending a week running around among the various stock houses in your own or other city, to see what is new.

The live merchant whose stock and prices are right never neglects to advertise his newest wares, he knows best what is practical and novel, and if it has the necessary merit to make it a success, he is not backward in advertising the novelty. Where a dealer or inventor is afraid, or neglects to advertise his wares, rest assured that there is something wrong somewhere, either he is behind the times, or his specialty lacks practical worth, or his prices are higher than his more enterprising competitors, who are not afraid to let the world at large know what they are doing.

* *

While reading matter in the periodical seeks to guide you in your technical manipulations, the advertising pages should always prove the commercial mentor. Remember it is as requisite for the professional

photographer, if he wishes to gain a paying clientage and wealth, to keep posted in what is new in the commercial branches of his business, as it is for him to study artistic poses and successful lighting. This result can only be obtained by carefully and regularly scanning the advertising pages of the current photographic periodicals. They are the best medium to bring together buyer and seller, they save money for the former, and bring business to the latter. In conclusion, we wish to call the attention of both classes to the *American Journal of Photography*, as an unsurpassed medium to bring about the above desired results.

We also call attention to the fact that with the present number we complete volume XII. Whether we have fulfilled the promises made a year ago—is a question which we leave to our readers and patrons, our steadily increasing subscription list is our best barometer.

* *

During the past year we have presented much original matter, some of which has been translated into the different foreign languages on the continent—we have carefully scanned the world of photographic literature, in all of its various ramifications, and have tried to keep our readers informed of the most important discoveries and happenings within the scope of the photographic field, consequently, we feel that the present volume contains so much matter of permanent value, both literary and scientific, that no subscriber, be he professional or amateur can afford to leave his numbers unbound.

* *

With the present number we furnish an index and title page, and are proud to say, as we look over our pages, that in the whole volume, not a line or word occurs, which could debar the Journal from the library, or centre table of the most fastidious in the land.

We have gone over our finished volume, page by page and carefully noted any possible shortcomings, and shall endeavor if possible to make up for them in the next volume. In addition, we are always glad to receive honest suggestions from our readers, and would ask their co-operations in making the success of the *American Journal of Photography* still greater.

* *

So much for our part, now in return we would kindly ask our old subscribers, to renew their subscriptions promptly, and wherever possible bring the journal to the notice of their photographic friends. We are anxious to swell our subscription list for the coming year. Remember new subscribers encourage the publishers,—and by the way do the editor no harm.

JULIUS F. SACHSE.

Lantern Flashes.

In "Optical Projection" a treatise is given of a practical character by Mr. Lewis Wright on the use of the lantern in exhibition and scientific demonstration through its entire range. The author has practiced optical projection as a hobby for many years, and in his experiments has discovered many ways of improving the application of the art and enlarging its scope. His treatise is comprehensive, and includes, besides an exposition of the philosophy of projected images, descriptions of the parts of the lantern, and of the lights susceptible of being used with it, and accounts of the demonstrations of the apparatus in representations of experiments in molecular and mechanical physics, physiology, chemistry, sound, reflection, refraction, dispersion, and color of light, the spectrum, interference, polarization, heat and electricity.

Exhibitions for the Sick.—The "Magic Lantern Journal" suggests that occasional lantern exhibitions would do much to entertain and cheer the convalescent patients in the hospitals, and proposes an organized effort in London to carry out the idea. The value of the lantern as a means of entertaining the sick has been for years recognized at the Pennsylvania Hospital for the Insane, and a fine lantern and a large collection of slides are in constant use. The idea should be extended to other hospitals, however, and it only awaits for some one to take the initiative. Who will start the movement?

Essentials.—In lantern microscope projection, three things are essential—the first is brilliant illumination, the second large amplification, and the third clear display of detail. But brilliant illumination does not mean a dazzling display of light upon a large white screen, showing the dark patchy outline of an object without detail. Objects shown in this way are far inferior to enlarged woodcuts.—*Optical Magic Lantern Journal.*

The Optical Magic Lantern Journal and *Photographic Enlarger*, so ably edited by J. Hay Taylor, for November, comes to us in an enlarged form, in fact it is a double number, and is full of valuable information regarding the optical lantern, and kindred subjects; no exhibitor can afford to be without this publication if he wants to keep abreast of the times. The same applies to the amateur photographer who is at the same time a lanternist. The subscription price for the United States is but sixty cents per year.

Projecting the Spectrum.—One of the most interesting things that can be shown with the lantern is the spectrum, with its glowing colors. Very few lantern lecturers ever show it. There are two difficulties to be overcome. One is the broad beam of light from the lens. Cut this down by placing a black cardboard in the slide stage, with a perpendicular slit in it, one-eighth of an inch wide. Then place the prism in front of the objective. Of course the lantern in this work must be turned sideways to get the refracted line of colors on the screen. The prism for this work may be either an equal-sided prism of flint glass or a prism bottle filled with carbon bisulphide. A direct prism may be used by simply placing together two or more prisms in line with bases in opposite directions. The oil light is too weak for this work. It must be done with the lime light or electrical light. Focus the slit on the screen before setting your prisms in position.

The interference of light can be shown with a very narrow slit, just out of focus. The same thing can be observed by holding two fingers close together between the eyes and light of a lamp, when the shadow of the interference will also fall on the forehead and can be seen by a person looking on. The overlapping disks of the tinters in a dissolving lantern will beautifully illustrate the mixing of colors, showing, for example, that complementary colors, such as blue and yellow, make white light. The study of light and color with the lantern is far more interesting than the projection of the most beautiful pictures.—*Church S. S. Magazine.*

Spectro-Lantern.—A novel and ingenious invention in optical telegraphy is being used experimentally in the Danish marine. The apparatus is intended to render practicable a method of telegraphing directed by light in Morse signals. It depends for its action upon the fact that white light, consisting of the colors of the rainbow, can be cut up by prisms in a lantern into these colors, forming the well-known bands of the spectrum. By a suitable and carefully arranged system of screens and prisms these luminous spectrum bands can be given a certain form, which may be made to correspond with the long and short dashes of the Morse code. When, therefore, the light from the lighthouse lantern is observed from a distance through a telescope fitted with a prism, the light appears to consist of these signals, and can be so read by an experienced Morse operator. A quick and certain system of night communication between different vessels on the one hand, and between ships and the shore on the other, has long been needed, and the spectro-lantern bids fair to meet the want.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held on Wednesday evening, November 11th, 1891, with Vice-President Joseph H. Burroughs, in the chair.

The secretary announced the presentation to the society, by Mr. J. C. Browne, of a copy of "Reports of Observations of the Total Eclipse of the Sun, August 7th, 1869, by Professor J. H. C. Coffin, U. S. N."

The board of directors reported the election of Messrs. Frank Bennet, and Cyrus Chambers, Jr., as active members of the society. They also announced the death of Mr. Frederick A. Walker.

On account of the alteration and improvement to be made in the meeting room, the Annual Honor Picture Exhibition will be postponed until January, and will be held under revised rules shortly to be issued.

Mr. Stirling offered a resolution to amend the by-laws, so that section 2, article II. shall read:—

Active members shall pay the treasury $10 annually in advance. The fiscal year shall commence on the first of January, but members elected on or after the first of July, shall pay but $5 for the current year, in addition to the initiation fee.

Mr. Casper Miller read a paper on "Preparing Ferrous-oxalate developer."

Dr. Mitchell suggested that an addition of 10 to 25 per cent. of glycerine to the developer, would tend to retard oxidization, and it was very often used in developers of that character. Sugar was also used by some for this purpose. There was nothing in glycerine that would at all interfere with any photographic process that the developer might be used for.

Mr. James Wilson exhibited a new shutter for instantaneous or time work. It was copied from an English invention known as the Sargent shutter. It was very compact and could be placed even between combinations of the lens or over the hood. The slide had an up and down motion similar to that of the Newman shutter.

Mr. Earle exhibited several instantaneous views of athletes taken with a hand camera, by Mr. Hemnent, of Brooklyn. These he thought were remarkable for the wonderful brilliancy in the shadows and the amount of detail. They were 4x5, taken with a Prosch triple shutter, and for instantaneous work, he had never seen them excelled.

Mr. Earle also showed a new mount, intended to take the place of the ordinary card mount with its mat accessory. The specimens

exhibited had a mat border with a plain smooth centre, on which a buff tint had been printed and were adapted particularly for platinotype, or other mat surface prints. The smooth centre was produced by severe pressure.

The chairman here announced that the competitive exhibition of lantern slides from hand camera negatives would be given, and appointed Messrs. Pancoast, Browne, and Castner, as a committee to judge the slides.

After the exhibition, the committee decided that the honors of the occasion were due to set H, by Mr. W. H. Rau, Mexican scenes taken by him, with a Scovill hand camera on glass plates, basing their decision on the difficulty of the subject and the technical quality of the pictures.

The slides selected to represent the society in the American Lantern Slide Interchange for the season of 1891–2, were exhibited, after which the meeting adjourned.

ROBERT S. REDFIELD,
Secretary.

PREPARING STRONG FERROUS OXALATE.*

The strongest form of oxalate developer, made by dissolving ferrous oxalate in potassium oxalate, is not as much used as it deserves to be, the explanation of which, no doubt, is to be found in the very considerable amount of trouble entailed in the ordinary manner of preparing it. Thus, two distinct procedures are required; first, the precipitation of the ferrous oxalate; then the solution of it in the alkalin oxalate, which operation is not very satisfactory on account of the tendency to oxalation if heat be applied for any length of time. In trying to find a more convenient plan of getting a saturated developer I hit upon the following, which, I find answers every purpose.

By estimating the quantity of iron, actually in solution in different developers, and further by the point (volumetically), when precipitation takes place I found that I could not in any way make a developer which should permanently contain over about 0.65 grains of ferrous oxalate per 10.0 c. c. Acting on this datum I took a saturated solution of potassium oxalate, and to it added an excess of the oxalate, which would be sufficient to convert enough ferrous sulphate to make

*Read before the Photo. Society of Philadelphia.

the 0.65 gramme of ferrous oxalate. The excess of the alkaline oxalate so added was gotten into solution by heat, when the iron was added. In this manner, a developer was produced without excess of anything, except the inert potassium sulphate formed in the reaction.

In comparing a developer so obtained with the strongest form of the ordinary one, (say that issued by the Eastman Company, for their bromides), we find that the latter contains for every 10.0 c. c. 0.59 gramme ferrous sulphate, which quantity can only give 0.3 gramme of ferrous oxalate, as against at least, twice that in a saturated developer.

In practice the most convenient way to make up, is to dissolve the full quantity of alkaline oxalate at once in water, so that the formula reads:

Potassium oxalate,	330.0 grammes.
Ferrous sulphate,	135.0 "
Water,	690.0 c. c.

Dissolve the oxalate by acid and heat, then cool until it just begins to be precipitated, then add the crystals of iron at once. After solution has taken place, cool completely as rapidly as possible (I place the containing vessel in cold water) and filter off into closed bottles.

In the above, we have 250.0 grammes of potassium oxalate which remain in solution, while the other 80.0 grammes are lost in forming the oxalate.

The quantity of water necessary to hold 250.0 grammes of potassium oxalates in solution is 760.0 c. c., but we need only take 690.0 c. c., since the 135.0 grammes of ferrous sulphate will furnish 60.0 c. c., the sulphate crystalizing with seven molecules of water.

The oxalate of iron is slowly precipitated after the bottles have stood sometime, therefore it is better not to make up a large stock at a time. The formula is calculated to give an excess of ferrous oxalate of 0.15 grammes in each 10.0 c. c., most of which will remain for a short time in solution. The iron and potassium oxalate are balanced.

C. W. MILLER.

Daylight Projection.—In the daytime, if you can throw the sunlight through your lantern with a mirror, you can make projections of pictures which far exceed in beauty anything produced by any artificial illumination.

To purify water hang a small bag of charcoal in it.

Photographic Hints and Formulæ.

The Gem Placque.—The small gem photographs now so much in vogue among young people, require a good arrangement to show them off nicely. A lady, who has a host of pretty young nieces and nephews to bestow upon her numerous small counterfeits of their bright faces, has hit upon the idea of a gem placque. Cut out a round piece of thick, stiff pasteboard, making it ten inches in diameter. Cover it with silver-gray satin or plush of any color. On the centre of this make a spider-web of gold thread or tinsel in long stitches. Through these meshes tuck in the little gems. Suspend with silk cord or ribbon.—*Home Queen.*

Antiseptic Soap.—An antiseptic soap which has been found to possess the property of closing scratches and healing sores and cracks, has been introduced by M. Vigier, and is having considerable sale in Paris. It is made of 12 parts dried sulphate of copper incorporated with 88 parts of any good soap material. The product has a pleasing green tint and is devoid of any irritating action.

A New Tin Alloy which Clings to Glass and Metals with Great Tenacity.—An alloy of 95 parts of tin and 5 parts of copper is recommended for connecting metals with glass for photographic and other purposes. The alloy is prepared by pouring the copper into the molten tin, stirring with a wooden mixer, and afterwards remelting. It adhers strongly to clean glass surfaces, and has nearly the same rate of expansion as glass.

By adding from ½ to 1 per cent. of lead or zinc the alloy may be rendered softer or harder, or more or less easily fusible, as required. It may also be used for coating metals, imparting to them a silvery appearance.

An Accelerator.—According to Dr. Eder in the *Photographische Correspondence*, tincture of iodide consisting of 1 gr. of iodine in 50 c. c. of alcohol, and diluted with 50 c. c. of water, produces an extraordinary effect when added to the hydroquinone developer. Three to six drops in 40 c. c. of developer causes the image to appear almost instantaneously. The contrasts appeared much softened, and a weak image often results when the exposure has been instantaneous.—*Scraps.*

A Silvering Tray.—Parafine or beeswax melted into the pores of a perfectly dry wooden tray, forms the best resistant to the action of nitrate of silver.

Photographing Birds.—Marcy the noted French physiologist, has for many years devoted considerable attention to the flight of birds. Numerous instruments have been designed and used by him to determine the muscular power of the wings and their form of motion, the deviations of the body of the bird and other similar points.

With the advent of instantaneous photography he has succeeded in obtaining full and complete views of birds at exactly timed intervals of flight, and in order to facilitate the conception, relief figures in wax, and later in bronze, were made, which gave a complete representation of the motions in flight.

The details of his work have just been published in Paris.

A Well-founded Complaint.—Photographers are complaining of the disposition shown by people to have their pictures taken in the winter rather than in the summer. The annoying part of it is that on the long summer days a much greater amount of printing could be done than is possible in the short ones of winter. So that this decree of fashion has resulted in leaving the photographers empty-handed in the season best fitted for their work, while in winter they are unable to finish the pictures in time to satisfy their patrons by reason of the rush of work. A prominent local photographer said the other day: "The dullness of our business is due more to this strange custom than to the fact that a large number of Philadelphians are away from town at this season of the year. Very frequently of late we have had well-known society women call on us to have tin-types taken. It seems to be quite the thing to have nothing but tin-types taken in summer, but it would not pay us to deal in them."—*Record.*

In the Anthropological Section of the American Association, Mr. William H. Seaman read a paper on the Essentials of Education, with a new classification of knowledge, in which he set forth the changes or modifications in present systems of education required to adapt them to modern ideas.

Chestnuts.—A paper by Prof. William Frear, in the American Chemical Association, dealt with differences in composition in the European and the American chestnut. European chestnuts transplanted to this country lose their peculiarities in some degree, but American chestnuts also exhibit wide differences in different years.

We doubt if the learned professor has lately visited the circus or the minstrel show; if so, he would hardly have made the latter statement.

A good Cement is melted alum, but it must never be used when water and heat are to come in contact with it.

Photographic Scissors and Paste.

The demand for photographs of celebrities has fallen off so largely in London that photographers are dropping that branch of their business.

A Sharp Photographer.—"A visit to Mount Vernon is accompanied by some curious experience these days," said a gentleman yesterday who was recently in Washington and went down to Mount Vernon. "The place has been given over to Coney Island practices, and you can be relieved of a nickle or a dime every time you turn around. They have a restaurant now, and serve a lunch or dinner in one wing of the Washington mansion, the meal being cooked in the old kitchen. But the funniest thing to me was a photographer, who must have been a good judge of human nature. You know when there is a crowd anywhere any one man who steps out and assumes leadership and directs what shall be done is generally followed blindly. This photographer would order everybody to go up on the porch, would pose them in front of his camera, take their negatives, and then demand a quarter apiece for pictures to be sent to each one by mail. The crowd obeyed him and paid him their quarters just as if they were obliged to do so. I remarked to him that I lived in Washington, and he ccouldn't come any such game on me, whereupon he touched his hat and begged my pardon, but went on driving the others about."

—*N. Y. Press.*

"Liquid Crystals."—A very remarkable paper has appeared in a recent number of Wiedemann's *Annalen* on the subject of "Liquid Crystals." An industrious German chemist has, it appears, discovered some most curious organic liquids, drops of which, when examined in the microscope by polarized light, show definite axes of electricity, just like crystals. That a liquid should possess an internal structure of this kind is one of the most remarkable of recent discoveries in the domain of molecular physics.

Walery's beautiful photograph of the Princess of Wales in her court costume is appropriately reproduced as the frontispiece illustration of "Ministering Women," Dr. George William Potter's story of the Royal National Pension Fund for Nurses, of which the Princess is President.

German Photographic Progress.—Remarkable success has been attained by Professor Ahn, of Breslau, in applying photography to fix the indications of different diseases of the eye. Another contribution to one of the newest departments of science is Professor Fischer's photographs of cultivations of luminous bacteria, which were photographed by their own light—the views giving evidence of the constant movement in which the tiny organisms are unceasingly engaged. One of the greatest anthropologists of the century, in Paris, has been making a collection of the various types of mankind, and he does it by means of the photograph. He inclines to the opinion that the type or origin, the race to which the party originally belonged, is better preserved among women than among men. He has, therefore, made his collection from among women, and to increase its attractiveness and value he has announced his intention to choose only beautiful women for his types. Apropos of this idea, a prominent photographer proposes to appeal to photographers for selection and contribution of a photographic reproduction of a representative woman whom they consider the most beautiful, so that a collection can be made which will be handed down to posterity as representing the standard types of beauty in the nineteenth century.

The utility of the microphone for observation of earth tremors and noises was soon recognized, and Italy has for some time held a foremost place among the nations which have taken advantage of the special adaptability of this instrument. It is now found that photography possesses admirable capabilities in the way of supplementing the work of the microphone in making these delicate records.

An Immense Egg Farm.—The Farrollone Islands are about thirty miles from the mouth of San Francisco Bay, off the coast of California, and are the homes of innumerable sea fowls. When San Francisco began to blossom out as a city her constant cry was for eggs.

There being no poultry raisers on the coast made the egg want hard to gratify. To supply this want the project of stealing the eggs of the gulls and muhrs that nest by the thousand on the Farrollone Islands was tried, and, proving successful, has ever since been one of the unique west coast industries.

The birds of this island are too plentiful to count or even estimate, as may be inferred from the fact that the egg gatherers often bring in 500 dozen eggs per day. This, however, gives but a partial idea of their immense number, a great many of their nests being inaccessible, and many others devastated by the rivalry of the birds themselves.

The egg business of the islands is conducted by a company, who pay the collectors 5 cents a dozen for collecting them. The season is from May to August, which, even at 400 dozen a day, makes the annual harvest about 500,000 eggs.

Protection Against Photographic Counterfeits.—M. Schlumberger, the French chemist whose successful imitations of bank notes led to his being prosecuted by the Government, has convinced the Bank of France that his statements and experiments were made in the interests of the public, and his appeal against the fine of 500 francs will probably be successful. Owing to his demonstration that in these days of scientific photography special precautions are necessary to guard against forgery, a small army of chemists, photographers, and engravers are hard at work in the production of a note which shall baffle the most ingenious imitator. Safety against counterfeiting, it is hoped, will be attained by having several vignettes—each struck in a different color—placed in superposition, and by having the fabric of the paper made in a special tint. Colors of deep tints are to be used, which will offer an equal resistance to chemical action, and which it will be impossible to separate. In the fabric of the paper will also be introduced a light muslin tissue printed in special colors, visible only when held to the light.—*News.*

Photography and Forgery.—In the detection of forgery by micro-photography it is not so much the mechanical difference of junctions of lines, strokes, etc., which are looked for as the difference between the colors of the ink in the original document and in the forgery. If the forger dipped his pen in the same ink-bottle as the writer of the check no difference would be found in the colors; but as this can hardly ever be the case there is generally a distinct difference in the colors of inks which the extremely sensitive plates of the micro-photographer render apparent. The moral for employers is to have their own ink and keep it under lock and key.

Another Photographic Triumph.—Astronomers recently observed by photography a solar disturbance lasting fifteen minutes, in which vapors ascended to a distance of 80,000 miles. The compass needle was sensibly affected and the effect was presumed to have been caused by a meteor striking the sun.

Special Notice—Through delay at the printing office we are unable to furnish title and index with the present number. The first number of Volume XIII will be issued promptly on January 1, 1892, including title and index for the present year.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS, OF NEW YORK.

THE following awards, consisting of handsome bronze medals, have been made at the exhibition of the Society of Amateur Photographers of New York, now being held at the American Institute Fair. The judges were Messrs. Wm. Kurtz, Frank La Manna and Henry A. Ferguson,—a professional and an amateur photographer and an artist

LANDSCAPE—*Superiority*:
Frames Nos. 38, 39, 46, 52, 53 W to H. M. Grisdale.

LANDSCAPE—*Excellence*:
Frame No. 220 " Alfred Stieglietz.

LANDSCAPE—*Merit*:
Frames Nos. 147, 164, 166 " Charles Wager Hull.

MARINES—*Excellence*:
Frame No. 188 " Ferdinand Ruppert.

PORTRAIT—*Superiority*:
Frame No. 28 B D Z " Charles H. Davis.

INSTANTANEOUS—*Merit*:
Frame No. 273 P and Y " G. W. Wundrum.

ENLARGEMENTS—*Superiority*:
Frame No. 110 " L. H. Laudy.

ENLARGEMENTS—*Excellence*:
Frame No. 11 " Louis T. Brush.

ENLARGEMENTS—*Merit*:
Frame No. 21 " J. S. Converse.

GENERAL—*Superiority*:
Frames Nos. 17 and 18 " Emilie V. Clarkson.

INTERIORS—*Excellence*:
Frame No. 263 " Fred Vilmer.

The judges also recommend for Honorable Mention:

FRAMES 120–139;
Examples of different methods of sensitizing and toning, upon various papers: Edward Leaming.

FRAME No. 205 A. L. Simpson.

FRAME Nos. 94, 95, 96,
Cloud Effects: Charles Wager Hull.

T. J. BURTON, Secretary.

THE PHOTOGRAPHIC SOCIETY OF JAPAN.

A MEETING of the above mentioned Society was held at No. 9, Kaga-Yashiki, Tokio, on the 4th inst. The object of the meeting was to give members an opportunity of testing the rapidity of their instantaneous shutters.

A fly-wheel, rotated by a crank and having a silvered glass ball attached to the periphery was fixed up, with a seconds pendulum along side of it. By watching the seconds pendulum, it was very easy, after a little time, to make the wheel revolve at a uniform rate of 60 revolutions a minute or one a second.

Immediately that a uniform speed of 60 revolutions a minute had been attained, an exposure was made with the shutter to be tested. On development of the plate, the angular motion of the wheel was indicated by the length of line traced out by the silvered ball, and it was a very simple problem to work out the exposure in the form of the fraction of a second.

The shutter that worked the most quickly was the "Caldwell." This, at its highest speed gave an exposure estimated at only $\frac{1}{115}$ of a second. Of the rapidest of the other shutters tried, none gave as little as twice this length of exposure. The longest exposure that was "Instantaneous" (not "time") was $\frac{1}{13}$ of a second.

Photographers who do "instantaneous work" have generally notions, vague to say the least of it, about the exposures they are giving. The tests made by the Photographic Society of Japan go to prove that by far the greater number of "instantaneous exposures" are somewhere between $\frac{1}{20}$ and $\frac{1}{30}$ of a second.

An interesting feature of the meeting was a trial of speed, by several of the members, in hand exposures "cap off and on." It was shown that more than one member could give an exposure as short as $\frac{1}{5}$ of a second by hand, and that without shaking the camera at all. It was found advisable to use a very loose cap.

The following gentlemen were elected members of the Society. Mr. E. Beitter, Mr. J. Rickett, and Mr. S. Suzuki.

This report has been delayed on account of the time necessary to work out the exposures of the various shutters, from the markings on the plates exposed.

W. V. BURTON.

Sets of JOURNAL for 1891 sent to us for binding during the present month will be returned complete with title and index.

A WORTHY CAUSE.

In view of this being the twenty-first year of the gelatine dry-plate process it is proposed in England to make some kind of acknowledgement to Dr. R. L. Maddox, the practical inventor of the process. This gentleman is now over seventy years of age and in circumstances by no means comfortable, chiefly on account of a breach of trust of a trustee of his, now deceased. Moreover, the labors of Dr. Maddox have for over forty years been carried on in great pain, due to a serious disease, and of late another malady has been added to his others.

A large sum of money has already been raised in England, the dry-plate manufacturers especially coming forward with liberal donations. The Ilford Company, for instance, made almost the first contribution of £100 (about $500) without any solicitation on the part of those promoting the cause. Other gifts have followed by professionals and amateurs of five guineas (about $25), as well as larger sums. People interested in photography in the mother country seem to be coming forward spontaneously in this matter. Mr. J. Trail Taylor, editor of the *British Journal of Photography*, is taking a leading part in this movement, and Andrew Pringle is acting as temporary secretary. Dr. Clifford Mercer, the well-known American amateur and photo-micrographist, of Syracuse, who is at present in England, is one of the English committee. No circulars have as yet appeared, though they are expected to be issued in the course of a few days.

It is believed that Americans, always so ready to assist unfortunate ones, especially those who have some claim on the prosperity of others, will come forward in this matter and make liberal contributions to the fund. The publishers of the AMERICAN JOURNAL OF PHOTOGRAPHY will gladly take charge of all contributions sent to it, acknowledging them promptly in its columns and forwarding the amounts from time to time to the English Committee having the matter in charge. It is hoped that the dry-plate manufacturers, especially who have been most benefited by the invention of Dr. Maddox, will contribute generously to this fund. Undoubtedly many professional and amateur photographers have also interest enough in the inventor of the gelatine dry-plate process to assist liberally in the movement. We cordially invite all to contribute.

Emperor William has created Professor von Helmholtz, the distinguished scholar, what is called a "Real Privy Councilor," the title being one degree higher than Privy Councilor.

The Buffalo Amateur Contest.—The publishers of the *Buffalo Express* announce that the amateur photographers' contest instituted by them will close December 14th, and that great interest has been manifested in all parts of the country, in the scheme; over 2500 photographs having thus far been received. Every issue of "The Illustrated Express," for some months to come will contain matters that will be eagerly looked for by amateur photographers everywhere.

The Lens & Shutter Contents.—The prize contest inaugurated some months since, by the Bausch & Lamb Co., closed November 1st. Quite a number of negatives were sent in from the different Societies, and the average results were gratifying to the originators of the contest. The variety of instantaneous subjects selected and the manner in which they were used to bring about artistic results, forms quite a study.

In the near future we expect to print a complete list of these competing Societies, the names of the winners and the subjects which were awarded prizes.

As soon as all the negatives are received, the judges appointed will decide upon the cash prizes, and make the awards according to the conditions of the contest.

Mr. L. Nievsky has recently perfected a dry ferrotype process, which will assuredly meet with considerable welcome. Exposure, development, and fixation are as rapid as with gelatine negative plates, while the drying of the picture is effected by means of heat in a few seconds. Some specimens shown, vie. with the best collodion positive work, and we have no doubt that the process will prove acceptable to the many who have long sought for such a one.

We acknowledge with pleasure the courtesy of M. M-Gautier-Villars et Fils, Paris, in forwarding us two valuable additions Bibliotheaque Photographique La Formation des Images Photographiques A de la Baume Pluvinel and Traité Practique de Zincographie-par V. Roux (operator). Deuxiéme édition, revue et considérablement augmentée par l'Abbé J. Ferret (Doctrer en Philosophie, etc.).

The former comprising above two hundred pages, treats fully of the wave theories of the action of light and of the vibratory influence of light upon particles of matter generally. Of the chemical action of light upon some thirty elementary and other substances, and extenedly upon the action of light upon the haloid salts of silver.

In relation to the interesting question as to whether the latent image upon the dry-plate is the result of chemical or mechanical action, no preference is given to either of the theories.

Caution—Platinum Toning.—There is an error in our formulæ for toning silver prints with platinum, as published in the November JOURNAL, pp. 536, so far as the statement of the *permanency* of the toning solution is concerned.

From the nature of the composition, the platinum is soon percipitated by the bi-tartarate of soda. The toning bath should therefore be mixed only for immediate use, say not more than half an hour before ready for toning. If mixed over night the platinum will be found percipitated in a black powder at the bottom of the vessel, and the bath is therefore useless.

This bath tones very rapidly, and toning should not be carried quite as far as to the color finally desired.

For convenience the chloro-platinite of soda may be kept in solution and added to solutions of the other salts just before use. The toning may be done by a weak, white light, and can therefore be carefully watched in all of its stages.

We have seen a number of beautiful toned prints made by this formula—surpassing those of all other silver-platinum toning formulæ which we have seen. Among the number were all of the various shades of color mentioned in the original.

A Photographic Panorama.—There is now on exhibition in the window of a Chestnut street book store a specimen of panoramic photography, by Mr. F. Gutekunst. The picture, which covers an angle of fully 160 degrees, is an admirable illustration of Smith's and Windmill islands, the photograph being made at the order of the Harbor Commissioners, in order to preserve a record of the islands before their final removal, work to that end having already been begun. The view was made from the roof of one of the large warehouses fronting on the river at Chestnut street and Delaware avenue; to the latter structure stretches away to the right, the ferry house of the Reading Railroad being the nearest of the wharf properties shown. In the immediate foreground are the "Twilight" and other river steamers, while in the middle distance the two islands are shown in their entire length. Beyond, Camden's river front stretches across the view, from above Cooper's point to a point far below. The negative is 10 inches high by about 35 inches wide, and was made in a French panoramic camera —the first of its kind imported into this country, the principle of which is that the lens is made to revolve on a fixed pivot, thus taking in an angle nearly twice as great as an ordinary lens, but without the usual distortion, the sensitive film being bent into a half circle, its surface being in the focus of the lens at all points.

In the Twilight Hour.

IMPROVE opportunities.

CARE and diligence bring luck.

A GOOD example is the best sermon.

IGNORANCE is the mother of impudence.

HE that grasps at too much holds nothing fast.

HE that falls to-day may be up again to-morrow.

WITHOUT friends the world is but a wilderness.

CHARITY begins at home, but should not end there.

EMULATION is lively and generous, envy base and malicious.

COURAGE, conduct and perseverance, conquer, all before them.

GIVE a wise man health, and he will give himself every thing else.

IT is a good rule always to back your friends and face your enemies.

PROSPERITY is not without its troubles, nor adversity without its comforts.

SOME hearts, like evening primroses, open most beautifully in the shadows of life.

A MAN may be great by chance, but never wise nor good without taking pains for it.

VIRTUE is the surest foundation both of reputation and fortune, and the first step to greatness is to be honest.

BAD habits are thistles of the heart, and every indulgence of them is a seed from which will spring a new crop of weeds.

GOOD nature is the very air of a good mind, the sign of a large and generous soul, and the peculiar soil in which virtue prospers.

NO character is more glorious, none more attractive of universal admiration and respect, than that of helping those who are in no condition of helping themselves.

LITERATURE is a ray of that wisdom, which pervades the universe. Like the sun, it enlightens, rejoices and warms. By the aid of books we collect around us all things—all places, men and times. By them we are all recalled to the duties of human life. By the sacred example of greatness our passions are diverted and we are all aroused to virtue. Literature is the daughter of heaven, who has descended upon earth to soften the evils of life. Have recourse, then, to books. The sages who have written long before our days are so many travellers in the path of calamity, who stretch out their friendly hands, inviting us, when abandoned by the world, to join their society.

NEVER be ashamed of confessing your ignorance, for the wisest man upon the earth is ignorant of many things, insomuch that what he knows is merely nothing in comparison with what he does not know.

TRAITE PRATIQUE DES AGGRANDISSEMENTS PHOTOGRAPHIQUE, Par E. Trutat. Ganthier-Villars et Fils, Paris, 1891. Second Part, pp. 137.

The first part, previously reviewed, describes in full the various apparatus and formulæ for making negatives suitable for enlarging from,—this second volume enters as explicitly into the description of the usual modes of enlarging, namely, by the direct rays of the sun, and by oxy-hydrogen, electric and oil lights. The various apparatus from the simplest, to the latest and most approved are minutely described. The Eastman enlarging lantern is highly spoken of for its cheapness, and simplicity. There are upward of fifty illustrations, which add greatly to the clearness of the text.

RECENT PATENTS.

ISSUE OF NOVEMBER 3RD, 1891.

462,459—Photographic Camera; Magazine, W. Trueman, Brooklyn, assignor to E. and H. T. Anthony, New York City.

462,382—Photographic Printing Machine; D. C. Hoover, Buffalo, N. Y.

462,335—Photographic Shutter; F. M. Spaulding, Kalamazoo, Mich., assignor to E. and H. T. Anthony, New York City.

462,507—Photography; Flash light for, E. M. Pine, Washington, D. C.

ISSUE OF NOVEMBER 10TH, 1891.

463,123—Photographic Camera; F. A. Hetherington, Indianapolis, Ind.

462,842—Photographic Camera; Magazine, G. H. Hurlbut, Belvidere, Illinois.

ISSUE OF NOVEMRER 17TH, 1891.

463,557—Photograph Exhibitor; C. G. Soderstrom, Denver, Colo.

463,284—Photographic Camera; Francis Burrows, Philadelphia, Pa.

ISSUE OF NOVEMBER 24TH, 1891.

463,630—Enlarging Camera; C. R. Jenne, Fort Wayne, Ind.

463,705—Photographic films or plates; Carrier or envelope for E. W. Perry, Jr., assignor of one-half to E. Kipper, Adams, Mass.

German papers contain long interviews with Privy Councilor Wermuth, who recently returned to Berlin from Chicago, where he was sent by the Government to look after German interests at the World's Fair. Herr Wermuth expresses great satisfaction over the prospects of the exhibition.

$2.00 per Year. 25 cts. per Copy.

LIBRARY OF CONGRESS
JAN 12
SMITHSONIAN DEPOSIT

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS
WIDEST SENSE.

Vol. XII. JANUARY, 1891. No. 133

CONTENTS.

	PAGE
SALUTATORY,	1
Posing Hands, *Xanthus Smith*,	2
Stereoscopic Transparencies, *Ellerslie Wallace*,	6
Rapidity in Photography; from *Revue Suisse*, *E. Demole*,	9
The Use of Meta Bi-Sulphite of Potassa as a Preservative of Eikonogen; from the French in *Le Progres Photographique*, *Georges Robert*,	11
Photographic Jurisprudence in Germany: The Right of a Photographer to Exhibit Specimens of his Skill,	13
Electricity in Aluminum Making	15
The Protective Mimicry of Insects—[Illustration—The Dead-Leaf Butterfly], *Julius F. Sachse*,	16
Photography and Science-Teaching, *Prof. Wm. M. Davis*, Harvard College, Cambridge, Mass.,	18
Mechanical Shutters—Original paper read before Societa Fotographica Italiana, *I. Gonfarelli*,	20
The Compass in the Watch,	23
Amateur Experiences—The Old Teamster, *J. Focus Snappschotte*,	24
Our Frontispiece,	26
Photography in the Colors of Nature,	27
Lantern Journey, *Dr. Charles L. Mitchell*,	28
The Diatotype Process, *Photographic News*,	29
Reversals of Negatives in Development, *W. de W. Abney*,	31
EDITORIAL,	34
Amateur Photographic Society of Baltimore,	36
GENERAL NOTES OF INTEREST,	37
Methods of Toning Bromide Prints Brown,	40
Methods of Developing Enlargements on Bromide Paper,	42
A New Retouching Fluid, *F. L. Stuber*,	43
IN THE TWILIGHT HOUR,	45
QUERIES AND ANSWERS,	46
LITERARY AND BUSINESS NOTES,	47
Photographic Patents,	48

Subscriptions received in London, by Trübner & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:
THOS. H. McCOLLIN & CO., PUBLISHERS,
No. 1030 ARCH STREET.

Entered at the Philadelphia Post-Office as second-class matter.

Carbutt's Flexible Negative Films.

A PERFECT SUBSTITUTE FOR GLASS.

Comparison of weight: 2 dozen 5 x 8 Films weigh but 7½ ounces, while 2-dozen 5 x 8 Dry Plates weigh 110 ounces. No extra processes necessary. Expose, Develop, Fix, Wash, Dry, and Print from the same as Dry Plates; and being but $\frac{1}{127}$ of an inch in thickness, can be printed from either side. These films can be used in regular plate-holders for Studio or Landscape work, or in the Special Film Holders, now supplied by several manufacturers of photographic apparatus.

PRICES OF FLEXIBLE FILMS--PER DOZEN.

COATED WITH OUR "SPECIAL," "ECLIPSE," AND "B" LANDSCAPE EMULSIONS.

5¼ x 4¼	$0 65	5¼ x 7	$1 75
5 x 5	0 95	5 x 8	1 80
4¼ x 5¼	1 12	6½ x 8½	2 50
4¼ x 6½	1 30	8 x 10	3 00
4¾ x 6½	1 40	10 x 12	5 40
4 x 7	1 05	11 x 14	7 00

CAN BE SENT BY MAIL WITHOUT FEAR OF BREAKAGE.

WHEN ORDERING BY MAIL, ADD 5 PER CENT. TO COST OF FILMS TO COVER POSTAGE.

Carbutt's Keystone Dry Plates.

"ECLIPSE," Sen. 27.—These Plates are Extremely Sensitive, and specially intended for Quick Studio Exposures, Concealed and Detective Cameras, Instantaneous Views, and Magnesium Flash-Light Photography.

"Keystone Special," Sen. 24 and 25.—For Portraits, Instantaneous Views, Out-Door Groups, etc. Blue Label.

"B" Plates, Sen. 16 to 20.—For Landscape Views and General Photography. Admittedly the finest for Amateurs.

"Orthochromatic" Plates, give correct Color Values. The best plates for Landscapes, Interiors, and Photo-Micrography.

'A" Transparency Plates.—For Lantern Slides and Window Transparencies.

FOR SALE BY ALL DEALERS.

Manufactured by **JOHN CARBUTT,**

Keystone Dry Plate Works, Wayne Junction, Philadelphia, Pa.

$2.00 per Year. 25 cts. per Copy.

LIBRARY OF CONGRESS FEB 6 SMITHSONIAN DEPOSIT

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS
WIDEST SENSE.

Vol. XII. FEBRUARY, 1891. No. 134

CONTENTS.

	PAGE
Frontispiece, "On the Wissahickon," *Wm. B. Wood.*	
The Permanency of Photographs—Silver, Carbon, and Platinum, *Fr. Wilde* (from the German by *Julius F. Sachse*),	49
Focusing, *Xanthus Smith*,	59
The Faculty of Observation, *J. Gale*,	62
Cleopatra, Engraving by *Crosscup & West*,	64
Photography in the Colors of Nature, *Fred. E. Ives*,	65
Heliochromy, *D. Winstanley*,	73
A Photographic Novelty,	77
Photographic Pictures on Celluloid,	79
Why Leaves Change Colors,	80
The Rise and Fall of the Turkeytown Camera and Tripod Club, *J. Focus Snappschotte*,	81
Ink for Stamping and Printing,	85
The Photographic Society of Philadelphia,	87
Diazotypes, *John Carbutt*,	90
EDITORIAL,	91
Our Illustrations,	92
IN THE TWILIGHT HOUR,	93
QUERIES AND ANSWERS,	94
LITERARY AND BUSINESS NOTES,	95
Photographic Patents,	96

Subscriptions received in London, by Trübner & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:
THOS. H. McCOLLIN & CO., PUBLISHERS,
No. 1030 ARCH STREET.

Carbutt's Flexible Negative Films.

A PERFECT SUBSTITUTE FOR GLASS.

Comparison of weight: 2 dozen 5 x 8 Films weigh but 7½ ounces, while 2-dozen 5 x 8 Dry Plates weigh 110 ounces. No extra processes necessary. Expose, Develop, Fix, Wash, Dry, and Print from the same as Dry Plates; and being but $\frac{1}{100}$ of an inch in thickness, can be printed from either side. These films can be used in regular plate-holders for Studio or Landscape work, or in the Special Film Holders, now supplied by several manufacturers of photographic apparatus.

PRICES OF FLEXIBLE FILMS--PER DOZEN.

COATED WITH OUR "SPECIAL," "ECLIPSE," AND "B" LANDSCAPE EMULSIONS.

3¼ x 4¼	$0 55	5 x 7¼	$1 40
4 x 5	0 80	5 x 8	1 50
4¼ x 5¼	0 90	6½ x 8½	1 55
4¼ x 6½	1 10	8 x 10	2 10
4¾ x 6½	1 20	10 x 12	3 75
5 x 7	1 40	11 x 14	6 25

CAN BE SENT BY MAIL WITHOUT FEAR OF BREAKAGE.

WHEN ORDERING BY MAIL, ADD 5 PER CENT TO COST OF FILMS TO COVER POSTAGE.

Carbutt's Keystone Dry Plates.

"ECLIPSE," Sen. 27.—These Plates are Extremely Sensitive, and specially intended for Quick Studio Exposures, Concealed and Detective Cameras, Instantaneous Views, and Magnesium Flash-Light Photography.

"Keystone Special," Sen. 24 and 25.—For Portraits, Instantaneous Views, Out-Door Groups, etc. Blue Label.

"B" Plates, Sen. 16 to 20.—For Landscape Views and General Photography. Admittedly the finest for Amateurs.

"Orthochromatic" Plates, give correct Color Values. The best plates for Landscapes, Interiors, and Photo-Micrography.

"A" Transparency Plates.—For Lantern Slides and Window Transparencies.

FOR SALE BY ALL DEALERS.

Manufactured by **JOHN CARBUTT,**

Keystone Dry Plate Works, Wayne Junction, Philadelphia, Pa.

$2.00 per Year. 25 cts. per Copy.

21.9.842 MAR 19 '92 SMITHSONIAN DEPOSIT

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS
WIDEST SENSE.

Vol. XII. MARCH 1891. No. 135

CONTENTS.

	PAGE
Frontispiece. Effects of Great Ice Storm, *Gilbert Cope.*	
The Selection and Testing of Photographic Lenses, *Ellerslie Wallace,*	97
The Genesis of Heliochromy, *Julius F. Sachse,*	101
Photography in the Tropics, *Prof. J. T. Rothrock, M.D.*	104
Landscape Art, *Xanthus Smith,*	106
Dry Plates at Ten Cents per Dozen—Every Amateur His Own Plate Maker (from the Swiss), *E. Chable,*	109
Fluorography,	112
Photogravure from Untouched Negative,	112
Photography in the Colors of Nature [*continued*], *Fred. E. Ives,*	113
The Photographic Society of Philadelphia,	117
Intensification, *Chas. L. Mitchell, M.D.*	120
Use of Old Hypo Baths,	122
Hints from a Practical Photographer, *John K. Miller,*	123
The Rise and Fall of the Turkeytown Camera and Tripod Club [*continued*], *J. Focus Snappschotte,*	125
Exhibition Philadelphia Photographic Society,	128
The Latest (Lippmann) Process of Photography in Colors (from *Photographic* (London) *News*),	130
Cereus *vs.* Cacti (with comment by the Editor), *R. Clinton Fuller,*	133
The Daguerre Monument,	136
Our Illustrations,	137
GENERAL NOTES,	138
IN THE TWILIGHT HOUR,	141
LITERARY AND BUSINESS NOTES,	142
QUERIES AND ANSWERS,	143
Photographic Patents,	144

Subscriptions received in London, by Trübner & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:
THOS. H. McCOLLIN & CO., PUBLISHERS,
No. 1030 ARCH STREET.

Entered at the Philadelphia Post-Office as second-class matter.

Carbutt's Flexible Negative Films.

A PERFECT SUBSTITUTE FOR GLASS.

Comparison of weight: 2 dozen 5 x 8 Films weigh but 7½ ounces, while 2-dozen 5 x 8 Dry Plates weigh 110 ounces. No extra processes necessary. Expose, Develop, Fix, Wash, Dry, and Print from the same as Dry Plates; and being but $\frac{1}{70}$ of an inch in thickness, can be printed from either side. These films can be used in regular plate-holders for Studio or Landscape work, or in the Special Film Holders, now supplied by several manufacturers of photographic apparatus.

PRICES OF FLEXIBLE FILMS--PER DOZEN.

COATED WITH OUR "SPECIAL," "ECLIPSE," AND "B" LANDSCAPE EMULSIONS.

3¼ x 4¼	$0 55	5 x 7½	$1 50
4 x 5	0 80	5 x 8	1 55
4¼ x 5¼	0 90	6½ x 8½	2 10
4¼ x 6½	1 10	8 x 10	3 00
4½ x 6½	1 20	10 x 12	4 75
5 x 7	1 40	11 x 14	6 25

CAN BE SENT BY MAIL WITHOUT FEAR OF BREAKAGE.
WHEN ORDERING BY MAIL, ADD 5 PER CENT. TO COST OF FILMS TO COVER POSTAGE.

Carbutt's Keystone Dry Plates.

"ECLIPSE," Sen. 27.—These Plates are Extremely Sensitive, and specially intended for Quick Studio Exposures, Concealed and Detective Cameras, Instantaneous Views, and Magnesium Flash-Light Photography.

"Keystone Special," Sen. 24 and 25.—For Portraits, Instantaneous Views, Out-Door Groups, etc. Blue Label.

"B" Plates, Sen. 16 to 20.—For Landscape Views and General Photography. Admittedly the finest for Amateurs.

"Orthochromatic" Plates, give correct Color Values. The best plates for Landscapes, Interiors, and Photo-Micrography.

"A" Transparency Plates.—For Lantern Slides and Window Transparencies.

FOR SALE BY ALL DEALERS.

Manufactured by JOHN CARBUTT,

Keystone Dry Plate Works, Wayne Junction, Philadelphia, Pa.

221497
APR 9 1

$2.00 per Year. 25 cts. per Copy.

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS
WIDEST SENSE.

Vol. XII. APRIL, 1891. No. 136

CONTENTS.

	PAGE
Frontispiece, "A Spring Flower," *H. Parker Rolfe.*	
The Photographic Scheme of the Bodleian Library, *Julius F. Sachse,*	145
Some Mechanical Troubles in Photography, *Ellerslie Wallace,*	149
Eiconogen [from the French], . . . *A. E. Pricam,*	151
A Permanent Sensitive Paper [from the Italian], *Sig. Arnaldo Corvi,*	154
Dark-Room Ventilation, *Photographic* (London) *News,*	157
Photographs of Typhoid Germs, *C. M. Cresson, M.D.,*	159
Early Researches in the Field of the Action of Light [from the German], . . . *Dr. J. M. Eder,*	161
An Address to the Inventors of America, *Edward T. Fenwick,*	168
The Photographic Society [Proceedings],	171
Photographers' Association of America,	175
The Latest Use of Photography, ... *J. F. S.,*	178
Photography in Colors, ... *J. W. Gibbonery,*	180
A Ramble in the Chester Valley [Illustrated],	183
Photography in the Colors of Nature [Concluded], *Fred. E. Ives,*	184
Tinted Silver Prints,	189
Recent Patents,	189
IN THE TWILIGHT HOUR,	190
QUERIES AND ANSWERS,	191
LITERARY AND BUSINESS NOTES,	192

Subscriptions received in London, by Trübner & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:
THOS. H. McCOLLIN & CO., PUBLISHERS,
No. 1030 ARCH STREET.

AN UNSOLICITED

Professional Testimonial

TO THE VALUE OF

Carbutt's Orthochromatic Plates.

1109 Cuthbert St.,
Philadelphia, March 6th, 1891.

John Carbutt, Esq.

Dear Sir: Your Orthochromatic Plates are very satisfactory in my hands for the reproduction of paintings, etc. In fact, nothing better seems possible in monochrome; the values being all preserved in their true relation and faithfully rendered. I have just completed the photographing of (20) twenty paintings at the State House (the neglected condition of which you may remember), and the commendations I am receiving from the Washington Inauguration Centennial Committee, of New York, I want you to share with me.

I have tested all the Orthochromatic Plates in the American market, and none of them save yours are able to come within a measurable distance of perfection. Please fill order appended at your earliest convenience.

Yours faithfully,

Charles Truscott.

Manufactured by JOHN CARBUTT,

(Pioneer American Manufacturer of Gelatino-Bromide and Orthochromatic Plates,)

KEYSTONE DRY PLATE AND FILM WORKS.

✳

Wayne Junction,
PHILADELPHIA.

LIBRARY 22234 55
MAY 11 18..
SMITHSONIAN DEPOSIT

$2.00 per Year. 25 cts. per Copy.

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS
WIDEST SENSE.

Vol. XII. MAY, 1891. No. 137

CONTENTS.

	PAGE
Frontispiece, ... *Julius F. Sachse.*	
Skies in Landscapes, ... *Xanthus Smith,*	194
Then and Now, ... *Ellerslie Wallace,*	196
Photographic Portraiture, . . . *Alfred Patterson,*	198
A Suggestion for a Possible Method of Identifying the Colors Photographed [Illustrated], *Julius F. Sachse,*	202
The Rise and Fall of the Turkeytown Camera and Tripod Club [Concluded], *J. Focus Snappschotte,*	205
Notes from England, ... *W. H. Harrison,*	209
The Permanence of Developed Prints, *British Journal of Photography,*	212
The Preservation of Pictures, ...	215
Gold-Colored Allotropic Silver, . . *M. Carey Lea,*	217
A Photographic Trip to the Bahamas, *J. T. Rothrock, M.D.,*	222
Woodbury Type for Amateurs, *W. T. Wilkinson,*	225
Photographic Formulæ—A New Hydrochinone Developer, 231; A Pyro-Hydrochinone Developer, ...	232
Photographic Society of Philadelphia	233
IN THE TWILIGHT HOUR—Gems from Shakespeare, ...	237
QUERIES AND ANSWERS, ...	238
LITERARY AND BUSINESS NOTES, ...	239
Fine Flash-Light Picture	240
Recent Patents, ...	240

Subscriptions received in London, by Trübner & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:
THOS. H. McCOLLIN & CO., PUBLISHERS,
No. 1030 ARCH STREET.

Entered at the Philadelphia Post-Office as second-class matter.

AN UNSOLICITED

Professional Testimonial

TO THE VALUE OF

Carbutt's Orthochromatic Plates.

1109 Cuthbert St.,
Philadelphia, March 6th, 1891.

John Carbutt, Esq.

Dear Sir: Your Orthochromatic Plates are very satisfactory in my hands for the reproduction of paintings, etc. In fact, nothing better seems possible in monochrome; the values being all preserved in their true relation and faithfully rendered. I have just completed the photographing of (20) twenty paintings at the State House (the neglected condition of which you may remember), and the commendations I am receiving from the Washington Inauguration Centennial Committee, of New York, I want you to share with me.

I have tested all the Orthochromatic Plates in the American market, and none of them save yours are able to come within a measurable distance of perfection. Please fill order appended at your earliest convenience.

Yours faithfully,

Charles Truscott.

Manufactured by JOHN CARBUTT,

(Pioneer American Manufacturer of Gelatino-Bromide and Orthochromatic Plates,)

KEYSTONE DRY PLATE AND FILM WORKS.

Wayne Junction,
PHILADELPHIA.

$2.00 per Year.

LIBRARY OF CONGRESS
224241
JUN 8
SMITHSONIAN DEPOSIT

25 cts. per Copy.

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS
WIDEST SENSE.

Vol. XII. JUNE, 1891. No. 138

CONTENTS.

PAGE

Frontispiece, "Witness My Last Act and Deed."
Why Business is Dull with Some Photographers, *Julius F. Sachse*, 241
Lighting in Portraiture, ... *Xanthus Smith*, 246
Energetic Development Without Danger of Fog [from the German], ... *Dr. A. Miethe*, 251
An International Standard of Photographic Weights and Measures, ... *Captain Abney*, 253
Amateur Experiences, XI.—A True Story, *J. Focus Snappschotte*, 256
Uranium [from the French], . . *M. H. Fourtier*, 260
Gold-Colored Allotropic Silver [Concluded], *M. Carey Lea*, 264
Glimpses for the Camera, ... *A. Kite*, 272
A New Collotype Process, ... *L. Warnerke*, 273

PAGE

Photographic Hints and Formulæ.—(*a*) How to Make Diapositives from Engravings and Prints in the Original Size, 275; (*b*) Turpentine as an Accelerator in Development, (*c*) Printing on Wood, 276; (*d*) Pyro Intensifier, 277; (*e*) Changing the Colors of Blue Prints, 278; (*f*) The Permanency of Water Colors, (*g*) Stripping Films from Dry Plates, ... 279
Photographic Society of Philadelphia 281
PHOTOGRAPHIC SCISSORS AND PASTE.—(*a*) Advice to Amateur Photographers, 284; (*b*) A Spirit Picture, ... 285
PHOTOGRAPHIC COMICALITIES, ... 286
IN THE TWILIGHT HOUR, ... 288
Special Announcement—The Annual Convention, 289
Recent Patents, ... 289
Aus Führliches Handbuch der Photographie, . . 290

Subscriptions received in London, by Trübner & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:
THOS. H. McCOLLIN & CO., PUBLISHERS,
No. 1030 ARCH STREET.

AN UNSOLICITED

Professional Testimonial

TO THE VALUE OF

Carbutt's Orthochromatic Plates.

1109 Cuthbert St.,
Philadelphia, March 6th, 1891.

John Carbutt, Esq.

Dear Sir: Your Orthochromatic Plates are very satisfactory in my hands for the reproduction of paintings, etc. In fact, nothing better seems possible in monochrome; the values being all preserved in their true relation and faithfully rendered. I have just completed the photographing of (20) twenty paintings at the State House (the neglected condition of which you may remember), and the commendations I am receiving from the Washington Inauguration Centennial Committee, of New York, I want you to share with me.

I have tested all the Orthochromatic Plates in the American market, and none of them save yours are able to come within a measurable distance of perfection. Please fill order appended at your earliest convenience.

Yours faithfully,

Charles Truscott.

Manufactured by JOHN CARBUTT,

(Pioneer American Manufacturer of Gelatino-Bromide and Orthochromatic Plates,)

KEYSTONE DRY PLATE AND FILM WORKS.

Wayne Junction,
PHILADELPHIA.

$2.00 per Year. 25 cts. per Copy.

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS
WIDEST SENSE.

LIBRARY OF CONGRESS
226800
SMITHSONIAN DEPOSIT

Vol. XII. JULY, 1891. No. 139

CONTENTS.

PAGE.

Frontispiece, Portrait Study, . . *Harrison Krips.*
Photographic Literature, ... *Julius F. Sachse*, 291
Our Butterflies, ... 294
Shadows in Portraiture, ... *Xanthus Smith*, 295
Incongruities Between Backgrounds and Subjects in Portraiture, ... *Ellerslie Wallace*, 301
The Latest Theory of Photographic Development, *Prof. M. Bourrique*, 304
Preliminary, Secondary, and Supplemental Lighting, *Dr. J. M. Eder*, 308
The Family Photograph Album, *Robert J. Burdette*, 315
Artistic Chromo-Photography, . . . *Dr. F. Stoltze*, 318
Experiments in Color Photography, . *Fred. E. Ives*, 320
Double-Albumenized Paper (Formulæ), ... 321
Flexible Phototype Plates, . . . *M. G. Balagney*, 322
The Ignis Fatuus of Photography, . . *F. Adolphi*, 324
"The Star Spangled Banner" (Fac-simile), *Francis Scott Key*, 326
Yonkers Photographic Club, ... 327
The Photographic Society of Philadelphia, ... 328
Uniform Weights and Measures, . . *C. J. Haussen*, 331

PAGE.

EDITORIAL NOTICES.—(*a*) John Carbutt, (*b*) C. R. Pancoast, 332; (*c*) New Orleans Camera Club, (*d*) "Gypanthia," (*e*) Bausch & Lomb's Offer to Amateurs, 333; (*f*) F. E. Ives, (*g*) W. H. Jackson, (*h*) The Metric System, ... 334
PHOTOGRAPHIC HINTS AND FORMULÆ.—(*a*) New Developer "Ixol," (*b*) To Blacken Copper, 335; (*c*) Cramer's Fixing Bath, ... 336
How to Skeletonize Leaves, ... 337
PHOTOGRAPHIC SCISSORS AND PASTE.—(*a*) Edison's Latest, (*b*) The Terrible Camera, 338; (*c*) New Camera Club, (*d*) The Cereus in Its Glory, 339
OUR ILLUSTRATIONS.—(*a*) Frontispiece; (*b*) Photogravure, "The Minuet," (*c*) Ives' Half-Tone "Orizaba," 340; (*d*) "The Star Spangled Banner," (*e*) Line Etching on Copper, ... 341
IN THE TWILIGHT HOUR, ... 342
LITERARY AND BUSINESS NOTES, ... 343
Photographic Patents, ... 344

Subscriptions received in London, by Trübner & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:
THOS. H. McCOLLIN & CO., PUBLISHERS,
No. 1030 ARCH STREET.

CARBUTT'S ORTHOCHROMATIC

PLATES AND "CELLULOID" FILMS

ARE STILL UNEQUALED FOR

Perfection of Coating,

Ease of Manipulation, and

Fidelity to Color Value.

All who use them unite in their praises as the best for all **GENERAL PHOTOGRAPHY.**

PRICES SAME AS ORDINARY PLATES.

	Plates.	Films.		Plates.	Films.
3¼ x 4¼	$ 45	$ 55	5 x 8	$1 25	$1 55
4 x 5	65	80	6½ x 8½	1 65	2 10
4¼ x 6½	90	1 10	8 x 10	2 40	3 00
5 x 7	1 10	1 40	10 x 12	3 80	4 75

For complete price-list and list of brands and specialties ask your dealer or send to factory.

FOR SALE BY ALL MERCHANTS IN PHOTOGRAPHIC MATERIALS.

Manufactured by JOHN CARBUTT,

(Pioneer Manufacturer of *Gelatino-Bromide* and *Orthochromatic Plates* in America,)

KEYSTONE DRY PLATE AND FILM WORKS.

Wayne Junction, PHILADELPHIA.

$2.00 per Year. 25 cts. per Copy.

LIBRARY OF CONGRESS
AUG 22 1891
SMITHSONIAN DEPOSIT

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS
WIDEST SENSE.

Vol. XII. AUGUST, 1891. No. 140

CONTENTS.

PAGE.

Frontispiece, "On Sylvan Banks."
The Convention, ... 345
Hand-Camera Work, ... *Xanthus Smith*, 351
Optics in Connection with Color Photography . . 352
Telephotography [from the French], *M. Gaston-Henri Niewenglowski*, 356
A German Advertisement, ... 358
Prices of Rare Metals, ... 359
Photographic Frauds, ... *J. F. S.*, 360
An Amateur's Experience in Instantaneous Photography, ... *William H. Seaman*, 364
A Toronto Photographer's Hazardous Feat at Niagara, ... 366

PAGE.

Notes on Perspective Drawing and Vision, *Dr. P. H. Emerson and T. F. Goodall*, 369
A New Photographic Objective, . *Ernst Gundlach*, 374
ANNUAL CONVENTION OF THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.—(*a*) Address of Welcome, 381; (*b*) Disbursements, 383; (*c*) President's Address, 384; (*d*) Reports on the Progress of Photography, ... 387
IN THE TWILIGHT HOUR, ... 391
Recent Patents, ... 344
LITERARY NOTES, ... 392

Subscriptions received in London, by Trübner & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:

THOS. H. McCOLLIN & CO., PUBLISHERS,

No. 1030 ARCH STREET.

Entered at Philadelphia Post-Office as second-class matter.

A Time Tried and Tested FACT.

NOT A MERE ASSERTION.

CARBUTT'S ORTHOCHROMATIC

PLATES AND "CELLULOID FILMS"

Are Unsurpassed in rendering the **True Color Values** in monochrome. As testified by professionals and amateurs who have been using them for the past **Five Years.**

I am using these plates now entirely for outdoor work, as they cost me no more and are far superior to plain plates for all work I have used them for. I have to-day tried your quicker Ortho-Portrait Plates, and am well pleased with their working qualities. Shall continue their use. C. M. VAN AKEN, Elmira, N. Y.

I have tested all the orthochromatic plates in the American Market, and none of them, save yours, are able to come within measurable distance of perfection. CHAS. TRUSCOTT, Philadelphia.

I have been using your Ortho-Portrait Plates, with a screen of yellow cheese cloth over sister, and the effect is so fine I am satisfied they are the Plate of the Future. FRANK THOMAS, Columbia, Mo.

NOTE AND COMPARE THE PRICES.

	Ortho Plates.	Ortho Films.		Ortho Plates.	Ortho Films.
3¼ x 4¼ per doz. . . .	$ 45	$ 55	5 x 7½ per doz. . .	$1 25	$1 50
4 x 5 " " . . .	65	80	5 x 8 " " . .	1 25	1 55
4¼ x 5½ " " . . .	75	90	6½ x 8¾ " " . .	1 65	2 10
4¼ x 6½ " " . . .	90	1 10	8 x 10 " " . .	2 40	3 00
4¾ x 6¼ " " . . .	1 00	1 20	10 x 12 " " . .	3 80	4 75
5 x 7 " " . . .	1 10	1 40	11 x 14 " " . .	5 00	6 25

Carbutt's Dry Plates and Flexible Films are to be obtained from all dealers in Photo materials. Send to Factory for reduced Price-List and list of brands.

Manufactured by JOHN CARBUTT,

(Pioneer Manufacturer of *Gelatine-Bromide* and *Orthochromatic Plates* in America),

KEYSTONE DRY PLATE AND FILM WORKS.

Wayne Junction, PHILADELPHIA.

$2.00 per Year.

LIBRARY OF CONGRESS
SEP 21 1891
COPYRIGHT ENTRY

25 cts. per Copy.

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS
WIDEST SENSE.

Vol. XII. SEPTEMBER, 1891. No. 141

CONTENTS.

	PAGE.
Frontispiece, "The Fisherwoman," *Jas. F. Wood*,	
Agar-Agar: A New Substitute for Gelatine, Albumen, and Collodion, *Julius F. Sachse*,	393
Hints for Beginners, *Xanthus Smith*,	397
Orthochromatic Photography, *G. Cramer*,	400
Paramidophenol,	403
Orthochromatic Photography, *John Cavbutt*,	406
Illustration of Poems by Photography, *Catherine Weed Barnes*,	409
Amateur Experiences, XII.—A Trip to the Seashore, *J. Focus Snappschotte*,	416
Caught by a Detective Camera,	418
Report on the Progress of Photography [Continued from page 390] *Dr. H. H. Elliott*,	419
Aluminium as a Substitute for Magnesium, *From the German*,	422
To Repair Broken Negatives	423
Permanent Prints *Brown Stick*,	424
Heliochromy, *Dr. Ed. Liesegang*,	425
EDITORIAL.—Agar-Agar, Erratum, 427; Our Illustration, Notices,	428
PHOTOGRAPHIC HINTS AND FORMULÆ.—(*a*) Locating Brain Tumors; (*b*) Orthochromatic Photography; (*c*) Bromide of Cadmium Intensifier; (*d*) Yellowing of Negatives, 431; (*e*) Uranium Intensifier; (*f*) Photographs on China; (*g*) Painting Lantern Slides; (*h*) Natural Colors Once More; (*i*) New Photo. Glass,	430
HAND-CAMERA SNAP-SHOTS,	433
PHOTOGRAPHIC SCISSORS AND PASTE,	434
Photographic Society of Japan,	438
M. B. Brady's Stolen Lens,	439
IN THE TWILIGHT HOUR,	440
LITERARY NOTES,	441
Recent Photographic Patents,	442

Subscriptions received in London, by Trübner & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:

THOS. H. McCOLLIN & CO., PUBLISHERS,

No. 1030 ARCH STREET.

Entered at the Philadelphia Post-Office as second-class matter

Index to Advertisements.

Acme Burnisher . . . . . VII.
American Amateur Photographer. . . . . XIX.
Backgrounds and Accessories . . . . . XXVII.
Bargain List . . . . . I.
Beacon, The . . . . . XXVIII.
Blitz-Pulver . . . . . IX.
Blitz-Pulver Flash-Lamp . . . . . XIV.
Buffalo Dry Plate Company . . . . . XXIII.
Carbutt, John, ... Inside Back Cover.
Collins, A. M., Manufacturing Company . . . . . XII.
Cramer Dry Plates . . . . . IX.
Crosscup & West . . . . . XXVI.
Draughtsmen's Sensitive Paper . . . . . VI.
Eastman Company . . . . . XXIII.
Entrekin's Burnisher . . . . . XVII.
Everlasting Paste Brush . . . . . IX.
Eye, The . . . . . XV.
Foot-Power Lathes . . . . . XXVIII.
For Sale or to Rent . . . . . III.
French & Company, Benjamin . . . . . VIII.
Gray's Lenses. . . . . IV.
Gundlach Optical Company . . . . . XII.
Hale's Specialties . . . . . XXIV.
Harvard Dry Plate Company . . . . . X.
Hurlbert Fence Company . . . . . XXVII.
Inglis's Sepia Bromides . . . . . XXIX.
Magee & Co., James F. . . . . XVIII.
McCollin & Co., Thos. H. . . . . XXII.
Mogey's, W. and D., Lenses . . . . . V.
Monogen Developer . . . . . XI.
Munn & Company . . . . . XXVIII.
Omega Sensitized Paper . . . . . XXV.
Orthoscope Lenses . . . . . XXI.
Patents Procured . . . . . XXVIII.
Phillips & Jacobs . . . . . XVIII.
Photographers' Envelopes . . . . . XXVII.
Photographic Times . . . . . XX.
Rau, William H. . . . . XXIV.
Rochester Optical Company . . . . . XIII.
Shanghai Mat, or Salted Paper . . . . . XXVI.
Situations Wanted . . . . . II.
Trier & Son, S. . . . . XXVII.
Waymouth Vignette Papers . . . . . V.
Wilkinson Co., John . . . . . XIX., XXIV.
Wilson-Hood-Cheyney Company . . . . . VI.

$2.00 per Year. 25 cts. per Copy.

LIBRARY OF CONGRESS
OCT 21 1891

AMERICAN JOURNAL
OF
PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS
WIDEST SENSE.

Vol. XII. OCTOBER, 1891. No. 142

CONTENTS:

PAGE.

Frontispiece, "Fairmount Park" Philadelphia, *J. W. Henderson.*
Expiration of the Patent on the Willis Platinum Process,..... 443
Originality in Posing and Lighting, *Xanthus Smith,* 445
Photographing Flying Insects,..... 448
Carbon Dyes,.....*Prof. William H. Seaman,* 449
Photography in the Tropics, *Prof. S. W. Burnham,* 452
An Accelerator,..... 454
Auxiliary Lighting,..... 455
The Photographic Reproduction of Old MSS, 458
Hunting in Melville Bay....*Benj. Sharp, Ph. D.* 459
The March of the Camera Men, (*Daily Chronicle.*) 460
Experiments to Determine the Limit of Vision, *Prof. M. D. Ewell, M. D., LL. D.* 467
Some Characteristics of Gold,..... 469
New Use for the Camera,..... 470

PAGE.

New Process of Making Printing Plates, *Fr. Winterhoff,* 471
Platinum Printing,.....*R. Wischeropp,* 472
Blisters in Gelantine-Bromide Prints,..... 471
A Triumph of Modern Photography, *W. H. Rau.* 473
Cold Rolling *vs.* Hot Burnishing,..... 474
Warm Tones in Bromide Prints, *W. Ethelbert Henry,* 475
PHOTOGRAPHIC HINTS AND FORMULÆ—(*a*) Varnish for Negatives; (*b*) Cheap Toning Bath; (*c*) Non-Poisonous Intensifier; (*d*) Blue-black Tone in Prints; (*e*) Photo Transfers, 478
Iso-Vireur Paper,..... 480
The Photographic Society,..... 480
EDITORIAL—Our Frontispiece; Platinum, Etc..... 481
PHOTOGRAPHIC SCISSORS AND PASTE,..... 484
IN THE TWILIGHT HOUR,..... 488
LITERARY AND BUSINESS,..... 489
Recent Photographic Patents,..... 490

Subscriptions received in London, by Trübner, & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:

THOS. H. McCOLLIN & CO., PUBLISHERS,

No. 1030 ARCH STREEET.

Entered at the Philadelphia Post-Office as second-class matter.

Index to Advertisements.

Acme Burnisher Co. . . . . VII.
American Amateur Photographer . . . . . XIV.
"Aristo" Paper . . . . . XXIX.
Backgrounds and Accessories . . . . . XXVIII.
Bargain List . . . . . I.
Beacon, The . . . . . XXVII.
Blitz-Pulver . . . . . IX.
Blitz-Pulver Flash Light . . . . . XVI.
Buffalo Dry Plate Company . . . . . XIII.
Carbutt, John . . . . . XXX.
Collins, A. M., Manufacturing Company . . . . . XII.
Cramer Plate . . . . . IX.
Crosscup & West . . . . . XXVI.
Club Rates . . . . . Outside Back Cover.
Wilson-Hood-Cheyney Company . . . . . VI.
Draughtmen's Sensitive Paper . . . . . VI.
Eastman Company . . . . . XIV.
Entrekin's Burnishers . . . . . XVII.
Everlasting Paste Brush . . . . . IX.
Eye, The . . . . . XV.
French & Co., Benj. . . . . VIII.
Foot-power Lathes . . . . . XXVII.
For Sale or to Rent . . . . . III—IV.
Gray's Lenses . . . . . IV.
Gundlach Optical Company . . . . . XII.
Gennert, G. . . . . XI.
Hale's Specialties . . . . . XXIV.
Harvard Dry Plate Company . . . . . X.
Hulbert Fence & Wire Co. . . . . XXVII.
Inglis's Sepia Bromides . . . . . XIX.
Magee & Co., James F. . . . . XVIII.
McCollin & Co., Thos. H. . . . . XXII.
Mogey's W. & D., Lenses . . . . . V.
Munn & Company . . . . . XXVII.
Omega Sensitized Paper . . . . . XXV.
Orthoscope Lenses . . . . . XXI.
Patents Procured . . . . . XXVII.
Phillips & Jacobs . . . . . XVIII.
Photographers' Envelopes . . . . . XXVIII.
Photographic Times . . . . . XX.
Rau, William H. . . . . XXIV.
Rochester Optical Company . . . . . XXIII.
Ramsperger & Co., H. G. . . . . XXVI.
Special Premium Offers . . . . . Inside Back Cover.
Special Notice . . . . . IV.
Situations Wanted . . . . . II—III—IV.
Trier & Son, S. . . . . XXVIII.
The John Wilkinson Co . . . . . XXIV.
Waymouth Vignette Papers . . . . . V.

$2.00 per Year. 25 cts. per Copy.

LIBRARY OF CONGRESS
NOV 11 1891
SMITHSONIAN INSTITUT

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS WIDEST SENSE.

Vol. XII. NOVEMBER, 1891. No. 143

CONTENTS:

PAGE.

Frontispiece, "Five O'clock Tea," *W. L. Sclacu.*

Photography and Illustrated Periodicals, *Ellerslie Wallace,* 491

"Realistic Photography," ..... *Xanthus Smith,* 494

Photo-Micrographic Atlas, ... 496

The First Portable Camera, (Illustrated in fac simile) ..... *Julius F. Sachse,* 496

Modern Astronomy, ... *R. S. Ball,* 502

A New Use for the Optical Lantern, (Illustrated), *T. C. Hepworth; F. C. S.* 511

The Aims of Artistic Photography, *Ernest J. Humphery, M. A.* 515

Intensification and Permanence, *British Journal of Photography,* 522

New Process for Toning Blue Prints, *W. P. Jenny, E. M., Ph. D.,* 528

Fixed Focus, ... *The Optician,* 529

EDITORIAL.—(*a*) More Photographic Jurisprudence, 530; (*b*) Photography in Bohemia, 531; (*c*) A Mammoth Group, 531; (*d*) Our Illustration, ... 532

The New Home of the Philadelphia Photographic Society, ... 532

PHOTOGRAPHIC SCISSORS AND PASTE.—(*a*) Photographs as an Electioneering Device, 532; (*b*) An Amateur's Adventure, 533; (*c*) Detective Photography, ... 534

PHOTOGRAPHIC HINTS AND FORMULÆ.—(*a*) Cleaning Stained Fingers, 535; (*b*) Intensification for Mechanical Processes, 535; (*c*) Pyro-Eikonogen Developer, 535; (*d*) Platinum Toning, 536; (*e*) Hand-Grenades, 536

IN THE TWILIGHT HOUR, ... 537

Book Review, "Dr. Eder's *Ausführliches Handbuch*," 538

Recent Patents, ... 538

Subscriptions received in London, by Trübner, & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:

THOS. H. McCOLLIN & CO., PUBLISHERS,

No. 1030 ARCH STREET.

Entered at the Philadelphia Post-Office as second-class matter.

Index to Advertisements.

Acme Burnisher Co. . . . . VII.
Alpha Sensitized Paper . . . . . XXIV.
Alpha Aristotype Paper . . . . . XXV.
American Amateur Photographer . . . . . XXIV.
"Aristo" Paper . . . . . XXIX.
Bargain List . . . . . I.
Beacon, The . . . . . XXVII.
Blitz-Pulver . . . . . IX.
Blitz-Pulver Flash Light . . . . . XVI.
Buffalo Dry Plate Company . . . . . XIII.
Cabinet Photo-Covers . . . . . XXVI.
Carbutt, John . . . . . XXX.
Collins, A. M., Manufacturing Company . . . . . XII.
Cramer Plate . . . . . IX.
Crosscup & West . . . . . XXVI.
Club Rates . . . . . Outside Back Cover.
Cut in Half . . . . . XXXII.
Draughtmen's Sensitive Paper . . . . . VI.
Eastman Company . . . . . XIV.
Entrekin's Burnishers . . . . . XVII.
Everlasting Paste Brush . . . . . IX.
Eye, The . . . . . XV.
French & Co., Benj. . . . . VIII.
Foot-power Lathes . . . . . XXVII.
For Sale or to Rent . . . . . III.
Gray's Lenses . . . . . IV.
Gundlach Optical Company . . . . . XII.
Gennert, G. . . . . XI.
Hale's Specialties . . . . . XXIV.
Harvard Dry Plate Company . . . . . X.
Hope's Aristotype Paper . . . . . XXXI.
Hulbert Fence & Wire Co. . . . . XXVII.
Inglis's Sepia Bromides . . . . . XIX.
J. W. Bryant Co. . . . . XXVIII.
Magee & Co., James F. . . . . XVIII.
Mogey's W. & D., Lenses . . . . . V.
Munn & Company . . . . . XXVII.
Orthoscope Lenses . . . . . XXI—XXII.
Patents Procured . . . . . XXVII.
Phillips & Jacobs . . . . . XVIII.
Photographers' Envelopes . . . . . XXVIII.
Photographic Times . . . . . XX.
Rochester Optical Company . . . . . XXIII.
Ramsperger & Co., H. G. . . . . XXVI.
Special Premium Offers . . . . . Inside Back Cover.
Special Notice . . . . . IV.
Situations Wanted . . . . . II—III.
The John Wilkinson Co . . . . . XXIV.
Trier & Son, S. . . . . XXVIII.
Vignettes . . . . . XXXI.
Waymouth Vignette Papers . . . . . V.
Webster's Dictionary . . . . . XXXI.
Wilson-Hood-Cheyney Company . . . . . VI.

$2.00 per Year.

DEC 11 1891
SMITHSONIAN

25 cts. per Copy.

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS
WIDEST SENSE.

Vol. XII. DECEMBER, 1891. No. 144

CONTENTS:

PAGE.

Frontispiece, Portrait.
In Memoriam—Dr. Josef Petzval, *Julius F. Sachse*, 539
The Photographing of Disasters, *Ellerslie Wallace*, 546
Posing and Composition,.....*Xanthus Smith*, 549
Color Photography by Lippman's Process, *Chas. B. Thornig*, 553
Individuality in Hair,..... 555
The Origin of Portraiture,.....*M. Lazar Popoff*, 556
Photography in the Colors of Nature, *Edward Sterling*, 565
Amateur Experiences XIII—A Case Photographic,.....*J. Focus Snapshotte*, 567
Our Extra Illustration,....*Prof. Wm. H. Seamon*, 571
The Photographic Periodical,..... 572
LANTERN FLASHES—(*a*) Optical Projection, 574; (*b*) Exhibitions for the Sick, 574; (*c*) Essentials, 574; (*d*) Projecting the Spectrum, 575; (*e*) Spectro Lantern,..... 575
Photographic Society of Philadelphia, *Robert S. Redfield*, 576
Preparing Strong Ferrous Oxalate, *C. W. Miller*, 577

PAGE

PHOTOGRAPHIC HINTS AND FORMULÆ—(*a*) The Gem Plaque, 579; (*b*) Antiseptic Soap, 579; (*c*) New Tin Alloy, 579; (*d*) An Accelerator, 579; (*e*) Silvering Tray, 579; (*f*) Photographing Birds, 580; (*g*) Well Founded Complaint, 580; (*h*) Good Cement,..... 580
PHOTOGRAPHIC SCISSORS AND PASTE—(*a*) A Sharp Photographer, 581; (*b*) Liquid Crystals, 581; (*c*) German Progress, 582; (*d*) An Immense Egg-farm, 582; (*e*) Protection against Photo-Counterfeits, 583; (*f*) Photography and Forgery..... 583
Special Notice..... 583
The Society of Amateur Photographers of New York..... 584
The Photographic Society of Japan, *W. V. Burton*, 585
A Worthy Cause,..... 586
Notes of Interest,..... 587
IN THE TWILIGHT HOUR,..... 589
Literary Review,..... 590
Recent Patents,..... 590

Subscriptions received in London, by Trübner, & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:

THOS. H. McCOLLIN & CO., PUBLISHERS,

No. 1020 ARCH STREEET.

Entered at the Philadelphia Post-Office as second-class matter.

Index to Advertisements.

Alpha Sensitized Paper . . . . . XXIV.
Alpha Aristotype Paper . . . . . XXV.
American Aristotype Co. . . . . XXIX.
American Amateur Photographer . . . . . XXIV.
Bargain List . . . . . I.
Beacon, The . . . . . XXVII.
Blitz-Pulver Flash Light . . . . . XVI.
Blair's Aristotype Paper? . . . . . VII.
Buffalo Dry Plate Company . . . . . XIII.
Cabinet Photo-Covers . . . . . XXVI.
Carbutt, John . . . . . XXX.
Collins, A. M., Manufacturing Company . . . . . XII.
Cramer Plate . . . . . IX.
Crosscup & West . . . . . XXVI.
Club Rates . . . . . Outside Back Cover.
Cut in Half . . . . . XXXII.
Draughtmen's Sensitive Paper . . . . . VI.
Eastman Company . . . . . XIV.
Entrekin's Burnishers . . . . . XVII.
Everlasting Paste Brush . . . . . IX.
Eye, The . . . . . XV.
French & Co., Benj. . . . . VIII.
Foot-power Lathes . . . . . XXVII.
For Sale or to Rent . . . . . II—III.
Gray's Lenses . . . . . IV.
Gundlach Optical Company . . . . . XII.
Gennert, G. . . . . XI.
Hale's Specialties . . . . . XXIV.
Harvard Dry Plate Company . . . . . X.
Hope's Aristotype Paper . . . . . XXXI.
Hulbert Fence & Wire Co. . . . . XXVII.
Inglis's Sepia Bromides . . . . . XIX.
J. W. Bryant Co. . . . . XXVIII.
Magee & Co., James F. . . . . XVIII.
Mogey's W. & D., Lenses . . . . . V.
Munn & Company . . . . . XXVII.
Newcomb & Co., E. W. . . . . IX.
Orthoscope Lenses . . . . . XXI—XXII.
Patents Procured . . . . . XXVII.
Phillips & Jacobs . . . . . XVIII.
Photographers' Envelopes . . . . . XXVIII.
Photographic Times . . . . . XX.
Rochester Optical Company . . . . . XXIII.
Ramsperger & Co., H. G. . . . . IV.
Special Premium Offers . . . . . Inside Back Cover.
Situations Wanted . . . . . II—III.
The John Wilkinson Co . . . . . XXIV.
Trier & Son, S. . . . . XXVIII.
Vignettes . . . . . XXXI.
Waymouth Vignette Papers . . . . . V.
Webster's Dictionary . . . . . XXXI.
Wilson-Hood-Cheyney Company . . . . . VI.